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pCon.planner 6 - Manual

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1   Introduction

Welcome to the pCon.planner online help

The pCon.planner online help contains **all important information** you need to know **for using the software.** You can use it as a **tutorial** to **get to know** the **different tools, functions and operations**. **Otherwise** you can use it as a **reference guide**.

The online help consists of the following **three chapters**:

Introduction

The introduction **summarizes pCon.planner** and tells you what it can achieve for you. You will learn everything you need to know about **download, installation and updates**. Furthermore you will get to know **how to use the online help**.

Link to chapter "Introduction"

User Interface

This chapter introduces the **user interface of pCon.planner**. Step by step you will learn about the **different components of the program**. The chapter provides you with important knowledge about how to work with the software.

Link to chapter "User Interface"

Furnishing with the pCon.planner

This chapter deals with the **interior design and furnishing planning**. From scratch you will learn how to **carry out the planning**, which **important things** you need **to keep in mind** and how to **efficiently and successfully work with the software.**

Link to chapter "Furnishing with the pCon.planner"

1.1   What is the pCon.planner?

The pCon.planner by EasternGraphics is a **professional** and **easy-to-use space planning and furnishing software**. The application allows you to **create complex furnishing concepts** in a **comfortable and professional way**, and to **visualize** these concepts in a **photo-realistic quality**.

The pCon.planner provides you with the following features:

Room design

The program features **powerful functions** particularly **optimized to plan and modify rooms and buildings.** With intuitive tools you **design entire living and working environments**, which could be anything from a small room to a complex office floor. Just as easily you can **allocate colors** and **materials** and **simulate lighting situations**.

Furnishing design

To design the furnishing, the pCon.planner can handle **different data formats** such as **DWG, SKP or OFML.** In the program the user has access to various **online 3D libraries**, such as pCon.catalog – a web browser compiling a steadily growing number of web catalogues of numerous manufacturers and dealers in the furnishing industry – or the **Google 3D-Warehouse**. There you can chose suitable objects and load them directly into your design project.

Graphical presentation

For **construction and presentation purposes** the pCon.planner provides **various qualities of visualization and camera perspectives**, each of which is realized with **fast real-time rendering**. This allows you to **move live and interactively through your planning**.

Just click here to have a look around the **online gallery** of the **pCon.planner 6 website**. There you can get an **impression of the brilliant rendering quality**.

1.2 Download, installation and updates

Download

pCon.planner can be **downloaded easily and free of charge** from the **pCon.planner website**. Follow the link to the <u>download website</u> for the current version of the software.

Installation

Double-click the **downloaded file for installation**. Before installation, **check** the <u>system requirements</u> to make sure your **computer is compatible with the software.**

The installation process is very easy and does not require any special knowledge.

Updates

The pCon.planner **updates** are **made available regularly** and **free of charge**. You can chose from the following two options:

Either:

- You use the **pCon.planner automatic update service**. **By default** this option ("automatic check for new versions") is already **activated** in the <u>Application Menu</u> under "Settings" on the Online tab.

Or:

- You click the **Updates button** on the <u>Help tab</u> in the <u>Ribbon</u> to search **for pCon.planner updates**. This manual method is useful if you have deactivated the automatic update service.

If an **update** is **available**, simply **follow** the **on-screen instructions** for **download and installation**.

1.3   How to work with the online help

This article gives you hints on how to use the online help. It answers many questions potentially arising in the context of the online help.

What does the online help do for the user?

The goal of the online help is to **introduce the user interface**, **the functions** and **the tools** of the pCon.planner in such a way that you are able to **independently operate the software**.

Apart from the introduction, the online help consists of **two big sections**. In the **chapter** "User Interface" you get to know the different **elements of the pCon.planner interface**, which gives you an impression of functions and capabilites of the software.

The third part of the online help – the **chapter** "Furnishing with the pCon.planner" – discusses the **tools and operations** provided by the pCon.planner. Numerous **examples with illustrations and descriptions** familiarize you with the software. This will enable you to quickly implement your ideas and concepts.

Why are some terms displayed in bold letters?

The **most important terms** in the online help are **highlighted in bold letters**. This enables you to have a **broad overview** of the content **without reading** the **entire text** in detail. **Certain software-specific terms** are also printed in **bold**.

What are tabs and groups?

The online help regularly refers to **tabs and groups**. These terms **refer to** the **structure of** the Ribbon. As illustrated in the figure below, the **commands** are **organized in logical groups,** which are **pooled on superordinate tabs**. In the example below, the Home tab is activated. The related groups are Clipboard, Tools, Room and Insert.
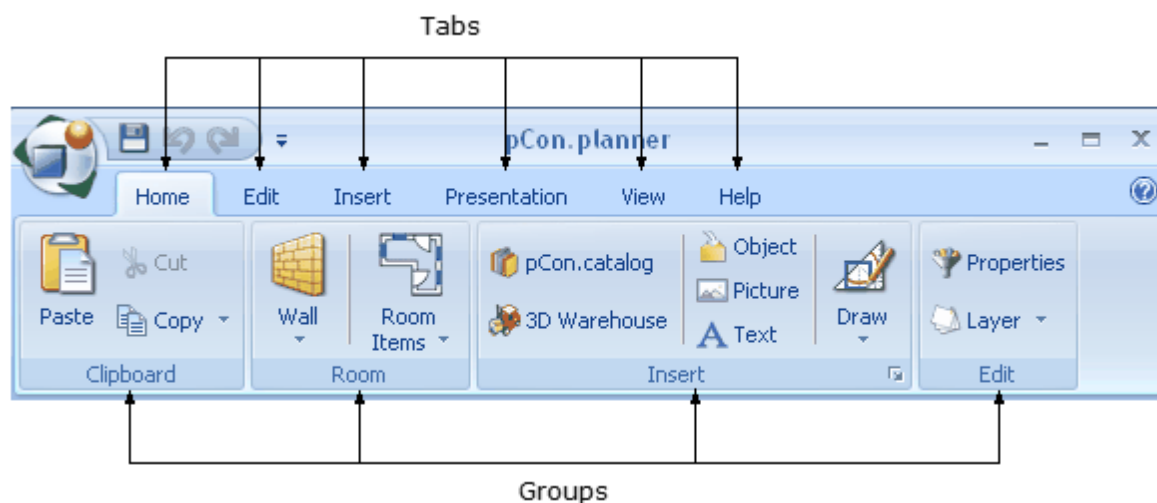

Figure 1

1.4   Technical hints and tips

This page provides hints and tips to **effectively counteract problems with** the **graphical display** of the pCon.planner.

Contents

General hints on graphics

- The pCon.planner **may be limited in** regard to the **quality of display and processing speed** if used **with graphics hardware older than two years**.
- Make sure that the **up-to-date graphics card driver** is installed on your computer. If required ask your IT personnel or system administrator.
- We recommend a **color quality** (desktop color depth) of **32 bit**. **If problems** with the display arise, test whether a **change to 16 bit** solves the problem.
- If you are using a **notebook**, we **recommend** using a **stand-alone graphics card**. **Onboard graphics hardware** is **often less powerful**.

Before installation

- **Make sure** your **computer** is **suitable for** the **installation** of pCon.planner. To do this, please refer to our suggested requirements and minimum requirements.
- **Install** the **up-to-date driver** of your **graphics** card or inquire with your system administrator about the current driver status.

Not supported rendering modes

It is **possible**, that your **system** does **not support all** rendering modes of the pCon.planner. If this is the case, the **note displayed below** (Figure 1) will **pop up** each time you **start the program**. In the **Render group** (View tab), the **unsupported rendering modes** are **replaced** with the **icon displayed below** (Figure 2). **Install** an **updated** version of your **graphics card driver** or inquire with your system administrator about the current driver status. An update of the graphics card driver usually solves rendering mode problems.

Figure 1

Figure 2

Improvement of processing speed

- The rendering modes of the pCon.planner **differ in processing speed**. With **newer graphics cards**, the Conceptual mode is usually **fastest**. In combination with **older graphics cards**, however, the Shaded mode **is faster**. Try the different modes to find out how each one of them works on your computer.

- By default, **synchronization of center and zoom of the orthographic views** are **deactivated** (see "extended rendering options"). If these options are **activated**, the software needs **more system resources**. If not sufficiently available, the processing speed is slowed down.

- If you are carrying out **large plannings**, **or** if your **computer does not meet** the **suggested requirements**, we **recommend** to **not subdivide the workspace**. Instead **choose Single workspace** on the View tab.

- In combination with **older graphics cards**, the **processing speed may be increased by decreasing the size** of the **user interface**.

ATI graphics cards

In ATI graphics cards, the **"A.I." setting** is **activated by default**. This may lead to incorrect display of textures in the pCon.planner. **Deactivate** this setting **to improve the display.**

Refresh rate

Modifying the refresh rate of your screen may **increase the processing speed** of **three-dimensional views**. Check which refresh rate setting suits best for your screen before you operate pCon.planner.

2   User Interface

This chapter **focuses on** the pCon.planner **user interface** with its different elements. You will gain knowledge of the **Application Menu**, **the Quick Access Toolbar**, **the Ribbon, the work area and the Status Bar.**

Figure 1 displays the **user interface** with its five elements.

The topics of the chapter are listed in the following table of contents.

Figure 1

Contents

2.1   The Application Menu

You can **access** the **Application Menu** by **clicking the pCon.planner icon**. This is the orange button in the upper-left corner of the <u>user interface</u> (see Figure 1).

Figure 1 shows the **different commands** within the application menu. It is surrounded by a **red line**.

The links below take you to more detailed information on each of the commands.

Figure 1

2.1.1 Create a new drawing

A **new empty document** is **opened each time** you **start** the **pCon.planner**. You can also open a new drawing by **clicking "New" in the** <u>Application Menu</u>.
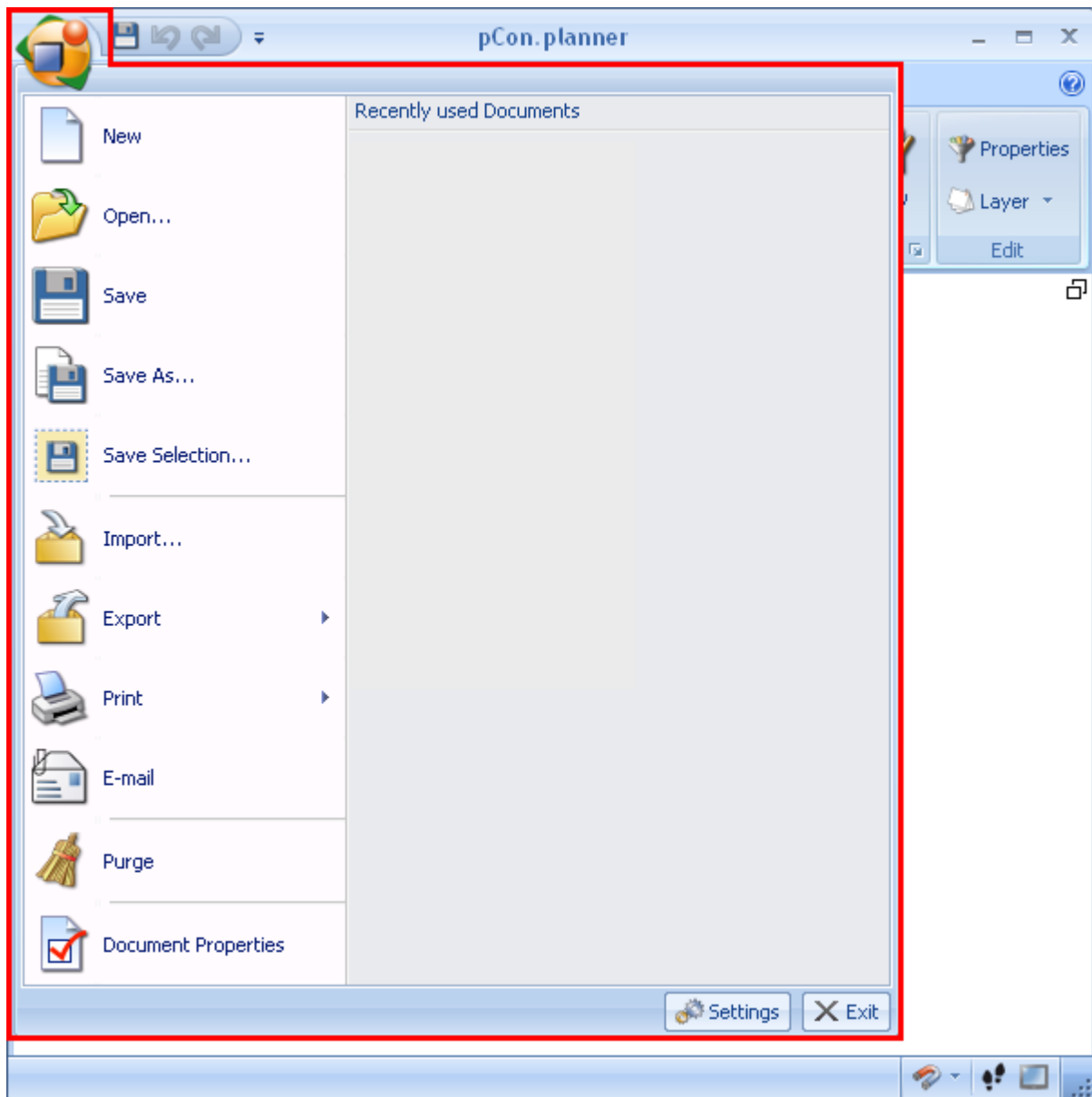
2.1.2 Open an existing drawing

The **right-hand side** of the <u>Application Menu</u> lists the **"Recent Documents"**. Simply **click to open** any of them. To open **documents which are not listed** here **click "Open"** and **navigate** to the desired **document**.

The pCon.planner supports the following **file formats**:

- DWG
- DXF(parametric)
- 3DS (3D Studio)
- SAB, SAT (ACIS SAT)
- SKP (SketchUp)
- FML (OFML-scene)
- ENV (OFML-ambience)
- OBK (pCon.basket project)

2.1.3 Save a drawing

To save a drawing **click "Save" or "Save as" in the** <u>Application Menu</u>. The save dialog **window opens**. **Select** a **destination** and **enter** the **file name**. Under **"File type"** you can choose between **different versions of the DWG format (R15 to R17)**. We **recommend** to save your data as **R17**.

2.1.4 Save a selection

Via the entry "Save Selection..." you can export any selection of objects as DWG file.

Click "Save Selection" in the Application Menu. In the file dialog box select the destination directory and enter the output format and a file name.

The dialog "Filetype" allows you to select a version (R15 to R17) of the DWG format. **We recommend to save your data as R17.**

Press **"Save"**.

2.1.5 Import

Via the **„Import"-command** in the <u>Application Menu</u> you can **import data in DWG, DXF, SAT, 3DS, SKP, FML, ENV- and OBK file formats** into your current project.

Follow the following steps:

1. **Click "Import"** in the Application Menu.

2. In the following dialog box **choose the files** which are to be imported.

3. **Click "Open"**.

4. You can **place the data anywhere in the** viewport.

2.1.6 Export

A drawing can be **exported** as a **geometry, or** as an **image**.

Export as geometry

Click "Export" in the Application Menu, then **click "Geometry"**. In the following dialog box **navigate to** the appropriate **folder** and **assign a file name**.

Click "Save".

Export as image file

Click "Export" in the Application Menu, then **click "Image"**. In the following dialog box **navigate to** the appropriate **folder, select a filetype** (BMP, JPG, PNG or TIF) and **assign a file name**. **Click "Save"**

The **dialog** box **"Image export"** opens, where you can **specify width and height of the image**, **aspect ratio** as well as **image quality** and **background color**. If you activate "Use View background", the image adopts the current background color of the active view.

Click "Generate image". A **picture of the active view** is now generated**.**

2.1.7 Print

With the print dialog of pCon.planner you can **print drawings on paper** or **export** a drawing **as pdf** file.

Print a selection

You have the possibility to **print** only a **selection** of your drawing. To do so navigate to a suitable view and **click "Print"** in the Application Menu (see Figure 1). In the **submenu "Print"** you can **select "Print", "Quick Print" and "Print Preview"**.

When you select "Print" you get to the **Print Setup dialog box** where you can **adjust the printer and the page settings**. Press Print to print the current view.

With "**Quick Print"** you skip the Print Setup dialog and **print right away.**

Select **"Print Preview"** to see a preview of the printout. Change the settings if required.
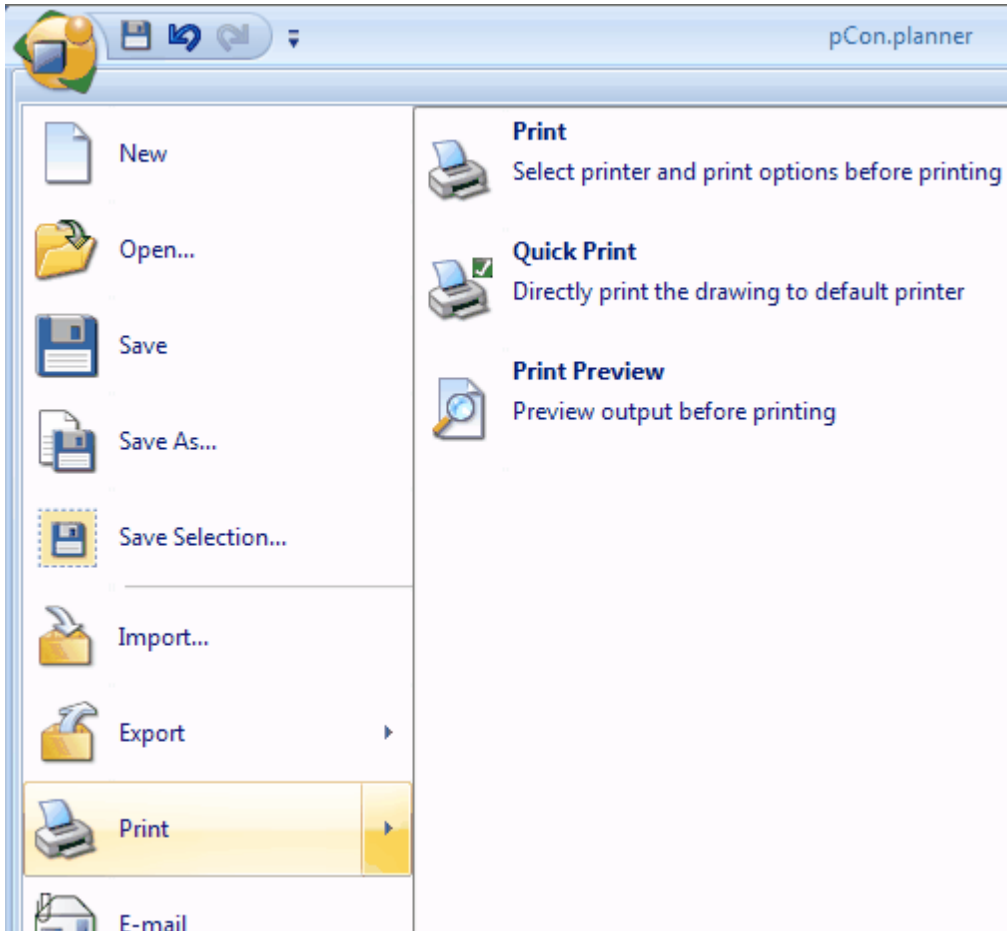
Figure 1

Figure 2 shows the **Print Setup options**. You can **select** a **printer**, the **paper size** and the **margins**. In the "**Options**" you can **adjust the quality** and the **background color** of the printout.

If you wish no white background color, you select any other color and activate "Use view background". The printout will adopt the current background color of the active view. Select "Print greyscaled image" to print in greyscale. Furthermore, you can adjust the printer setting under "Properties" or have a preview displayed.

Under "Printer" you can select any real printer or file printer (e.g. pdf printer). Of course, you can only select file formats that can handle image content.
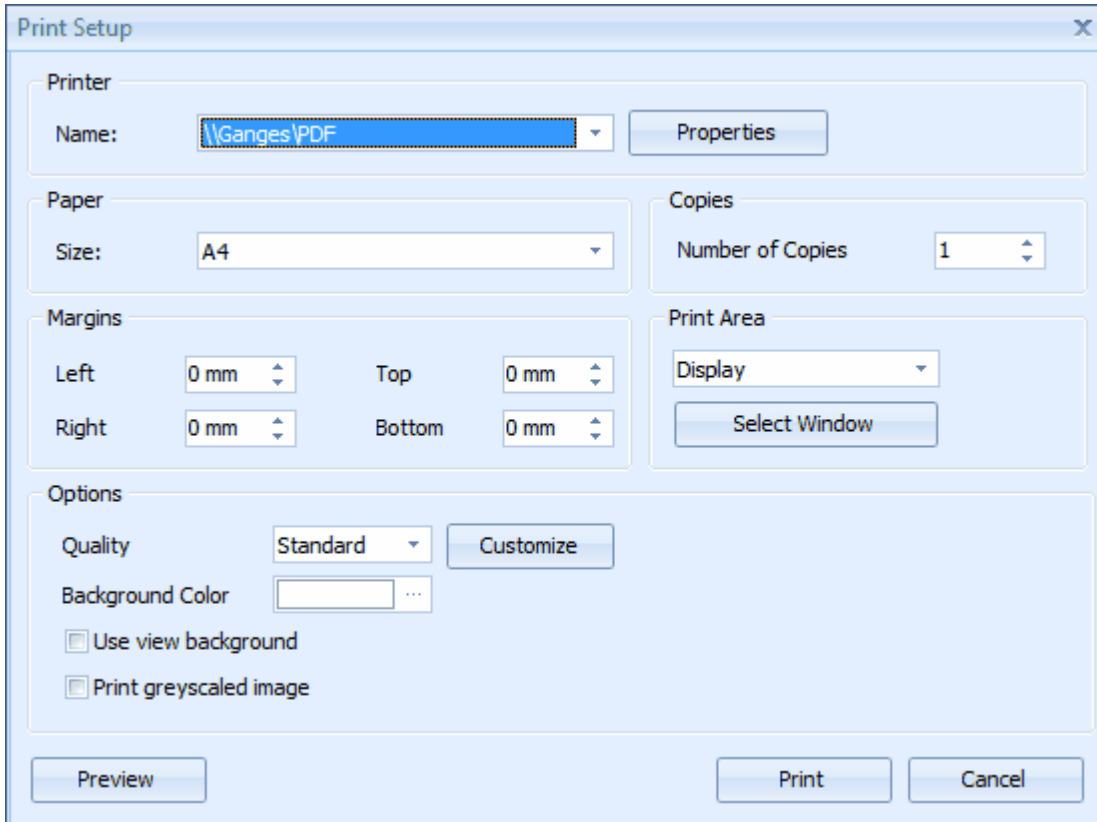
Figure 2

Figure 3 displays the print preview. The **menues, legends, coordinate axes or any other components of the program** itself are **not printed**. In this case the drawing is printed in landscape format. Under "Properties" you can change this setting.

Use the **Print button** in the upper left corner of the print preview **to directly print** the image. You don't need to return to the menu. Furthermore, you can **zoom in or out** on the print preview via the relevant buttons. To quit the print preview press "Close" or ESC.
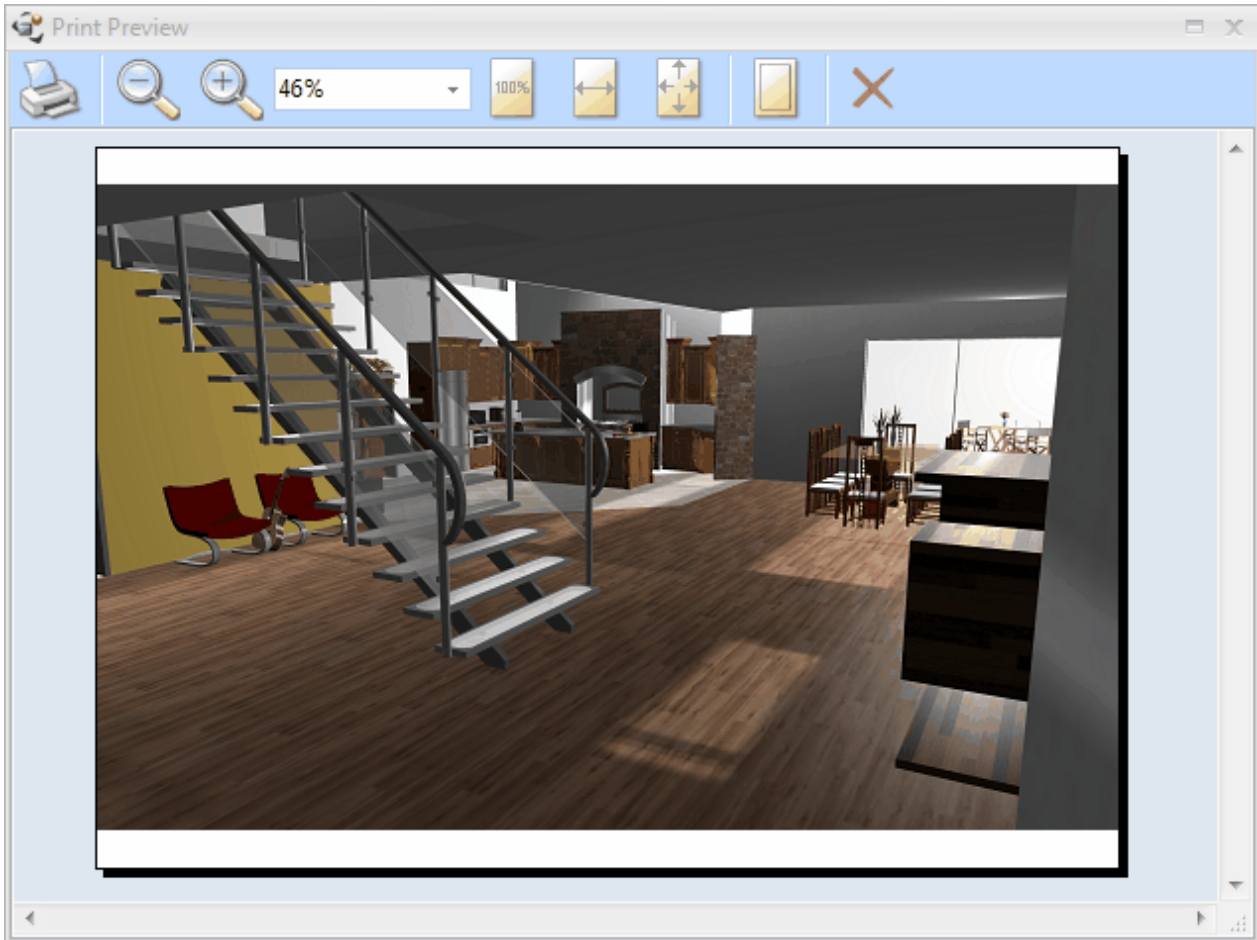
Figure 3

Print PDF

The print dialog allows you to **export a pdf file** of the current view. Simply **select a pdf printer** instead of a real printer. Of course this depends on the software and pdf printers that are installed on your system.

2.1.8 Send an e-mail

Via the entry **"E-Mail"** in the <u>Application Menu</u> you can **send an open DWG drawing** as **attachment to an e-mail** to friends, colleagues or business partners.

2.1.9 Purge planning

Via the entry "Purge" in the <u>Application Menu</u> you can reduce the filesize your your planning: unused layers, blocks, styles for measurements, texts and lines are removed automatically from your planning file. An example: When you delete an object from your drawing, pCon. planner removes the graphical visualization of the object but not the layers that belong to this object.

To optimize the filesize click "Purge" in the <u>Application Menu</u>.

Figure 1

2.1.10 Document Properties

Via the command **"Document Properties"** in the Application Menu you can **specify the scaling units** you want to use for your project. "Meter" is the default. You can also choose between:

- Millimeter
- Centimeter
- Kilometer
- Inch (1 inch = 2.54 cm)
- Feet (1 foot = 12 inches = 30.48 cm)

Furthermore, this dialog provides you with information on the **DWG version** your current planning is saved as.

2.1.11 Settings

In the right-hand side of the Application Menu – right next to the „Exit" button – is another button that takes you to the Settings dialog box. On the **four tabs "Load", "Save", "Online" and "Misc"** you have the following configuration options:

Load Tab

- **Scaling:** This refers to the **opening of geometry data with unknown scaling**. You can either **determine the standard scaling unit** to be applied to all geometry with unknown scaling. The **other option** is to have a scaling unit **selection dialog box open every time you open data** with unknown scaling.
- **Options:** Activation or deactivation of the **automatic restoration** of the **view settings** when opening a file.

Save Tab

- **Auto Save:** Activate or deactivate the auto save function and the save interval.
- **Cache:** Activate or deactivate the cache for geometry data. We recommend to activate the cache.

Online Tab

- **Updates:** Enable or disable the **automatic check for new versions of the software.** Apart

form this, you can also use the manual software updates.

Miscellaneous Tab

- **Language: Select the language** in which you want to use the **program.** pCon.planner 6 is available in **German, English, French, Italian, Dutch, Portuguese, Romanian and Spanish.**
- **Directory for image storage:** Select a **harddisk directory** where the **textures** (graphical data) of a DWG are **stored.**

2.2 The Ribbon

The Ribbon consists of **numerous groups** on **five tabs** and provides **all important tools and operations** you need for your planning. In this chapter you will learn the details on the Ribbon.

The **red line** in figure 1 outlines the **ribbon**.

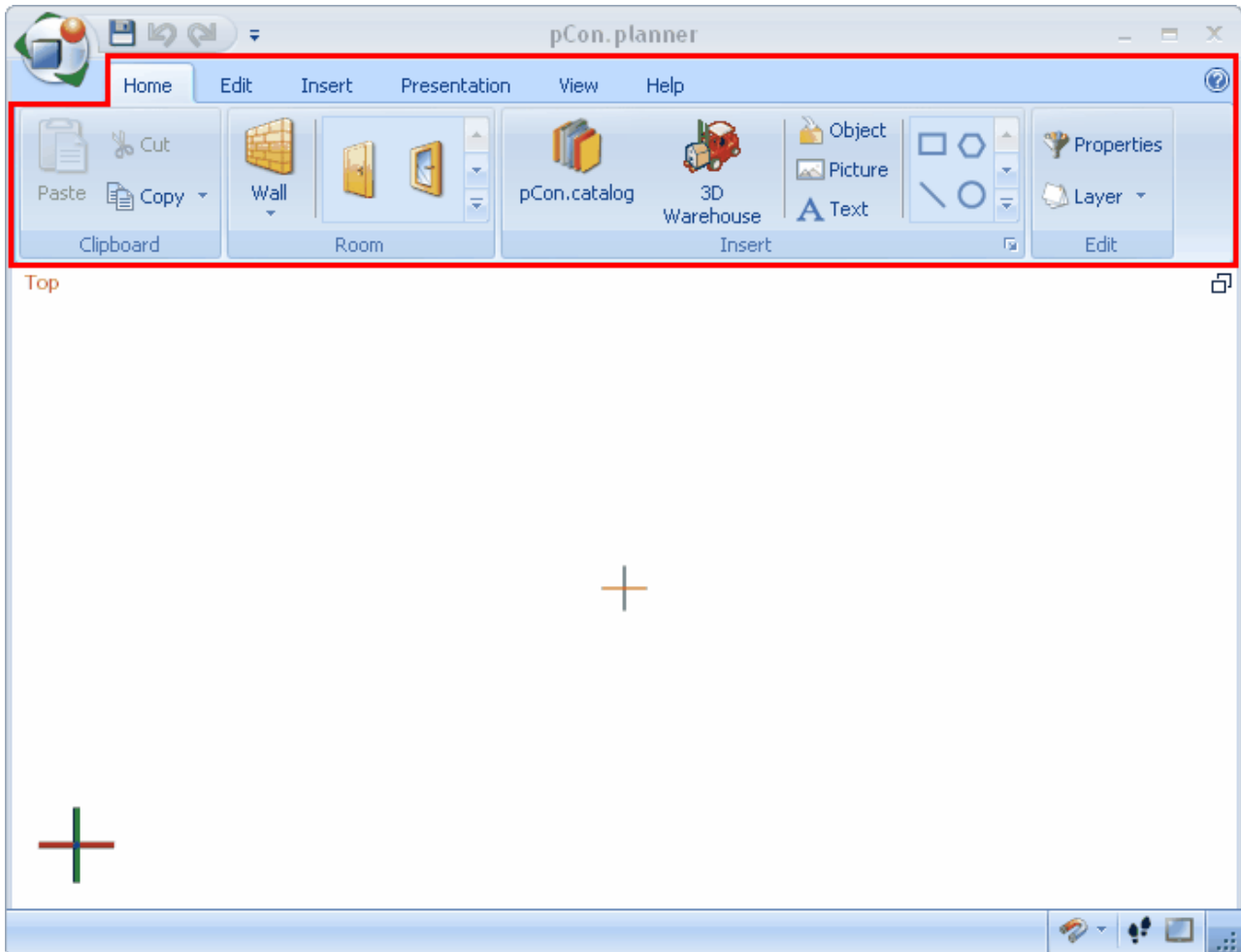The links below figure 1 lead you to the single chapters.

Figure 1

Contents

2.2.1 Home Tab

The **Home tab** includes **all functions and tools** for **a complete room and furnishing planning**. The tab contains **four command groups**, which you can see in **Figure 1**. Each group will be described below.
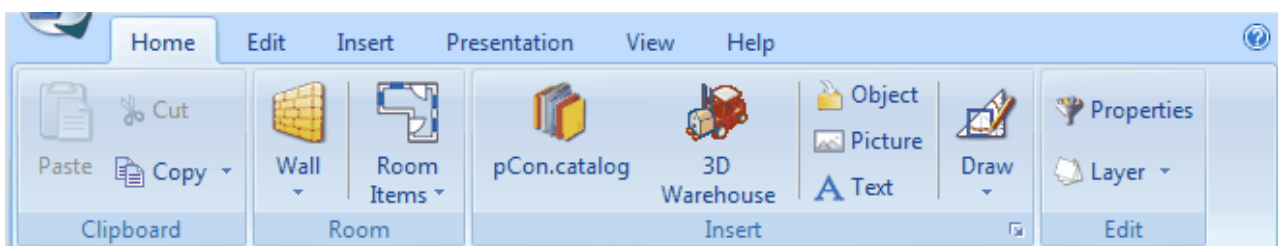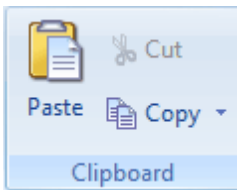

Figure 1

Clipboard

The pCon.planner clipboard allows you to **cut, copy and paste objects**. It also enables you to **create an image of the active view**. To do this, **click "Copy Image"**. An image of the active view is copied into the clipboard. Via the **Paste command** you can **open the image in any graphics software.**
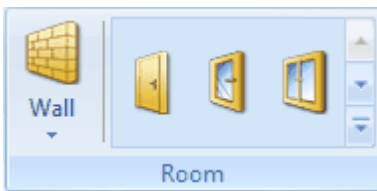
Figure 2

Room

This group contains **all room items** of the pCon.planner. The commands allow you to **draw walls, insert windows, doors and floors, and arrange adequate illumination.** The tools allow for **flexible modifications** and as such enable **accurate and customized designs**. How to create rooms and insert windows, doors and so on is explained in detail in the chapter "Design and furnish rooms".
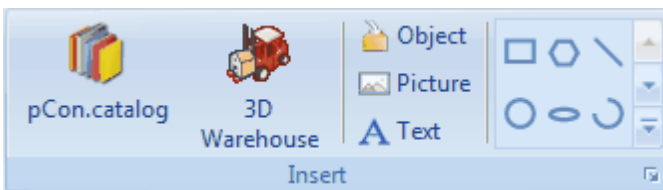
Figure 3

Insert

The "Insert" group enables you to **insert numerous object types** of the **data formats DWG and FML, pictures, text, measures or geometric 2D and 3D elements**. The chapters "Objects" and "Drawing objects" explain how to insert elements.
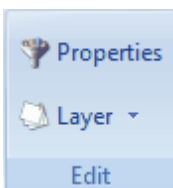
Figure 4

Edit

The "Edit" group includes the **dialogs for layers and properties**. The **latters** serves to **edit object properties.**

Via the **layer dialog** you can **determine the visibility** of objects by selecting or deselecting single object layers. Please find further information about layers and properties in the chapter "Functions".

Figure 5

2.2.2 Edit Tab

The Edit Tab allows you to **modify objects as well as your entire project**. With the tools and materials you can **modify the shape and the surface of elements**. Furthermore, the **visibility options** allow you to directly **address** layers in order **to display or to hide them**.

Figure 1

Tools

Figure 2

The Tools group involves the **standard edit functions** of the pCon.planner 6. These enable you to **move objects, to modify their size, to rotate, array, group, ungroup and extrude them.**
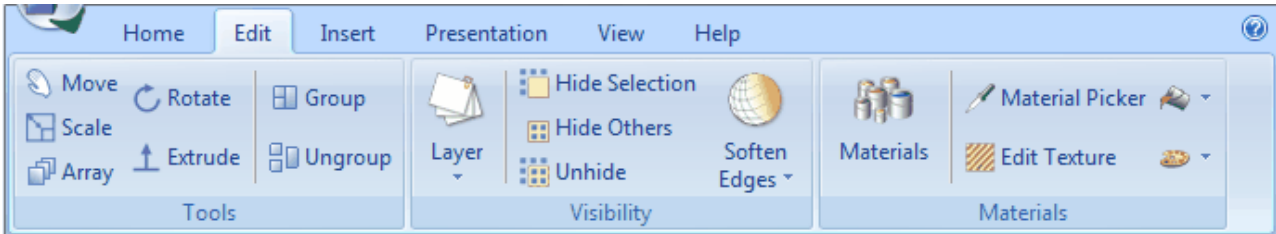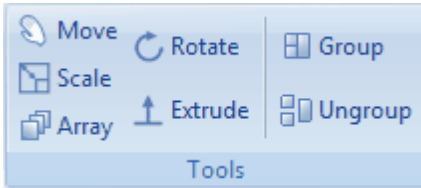
The functions are explained in the passage "Tools" in chapter "Furnishing with the pCon.planner".
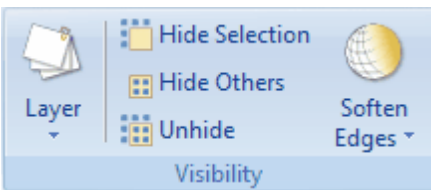
Visibility

Figure 3

The functions of this group allow you to **influence the visibility of objects**. You can **display or hide object layers** with the **layer button** and the corresponding quick access. Furthermore, there are three buttons to **hide or unhide selections of objects**.

A click on the icon **"Soften Edges"** allows you to make a choice of the **number of displayed edges** of an objects.

Here you find detailed information about visibility.

Materials
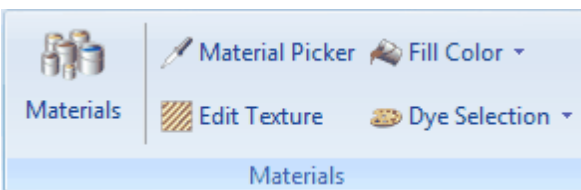
Figure 4

The materials group contains several **color and texture tools**, the latter of which are used to **adjust images** that you place over the surface of an object exactly **to the shape of the object**.

The command **"Fill color"** is used to **assign** a certain **color to** a **single object.** **"Dye Selection"** enables you to **assign** a **color to** a **selection of objects**.

The **material picker** allows you to **pick a color or texture** of an object and to **assign** it **to another object** with only a mouse click.

With a click on the **"Materials" icon** you can open an **online catalog** with **many selectable materials**.

Please find further information about these tools in the chapter "Functions"

2.2.3 Insert Tab

The Insert tab provides all functions regarding the **insertion of objects into your planning**. The three groups on this tab include **"Room", "Objects" and "Drawing elements"**.

Figure 1

Room

Figure 2

This group contains **all room items** of the pCon.planner. The commands allow you to **draw walls, insert windows, doors and floors, and arrange adequate illumination**. The tools allow for **flexible modifications** and as such **enable accurate and customized designs.**
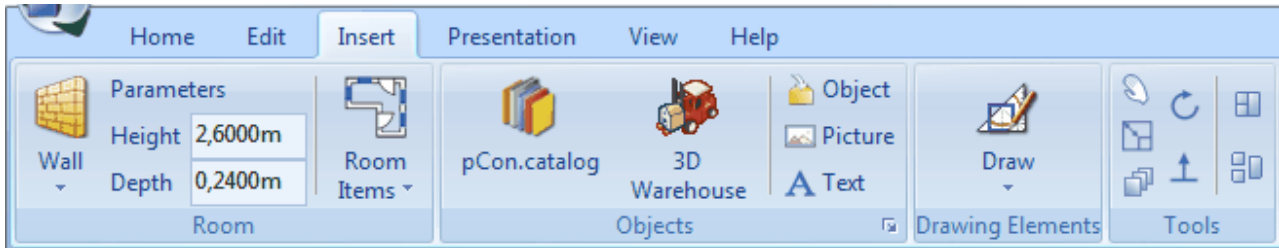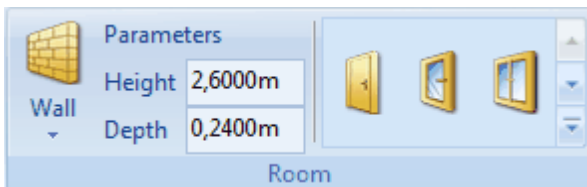
Objects
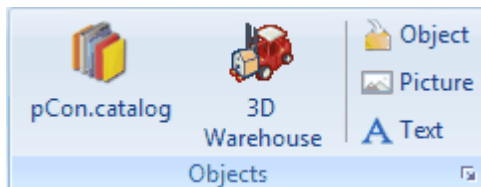
Figure 3

The "pCon.Catalog" button opens an **online client** that allows you to **access numerous online catalogs**. There you **load objects** directly **into** your **planning**. Apart from **pieces of furniture**, you can download **different materials such as fabrics, metals or wood** and **"pull" them onto objects**.

The button "3D_Warehouse" forwards you to the **Google 3D Warehouse**.

Furthermore, you can **insert text and pictures** or you can **import different file formats** such as **DWG or FML via the "object" button**.

Drawing elements
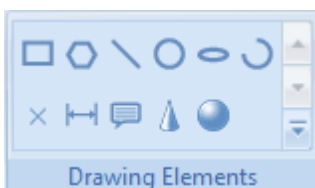
Figure 4

The "Drawing elements" group includes a number of **two- and three-dimensional objects**, such as **polyline, circle, rectangles** or **spheres.** Furthermore, you will find here the **measure tool** and the **annotations tool**. Further drawing elements can be imported from the "2D symbols" web catalog.

Here you find detailed information on how to **create and modify drawing elements**.

Tools
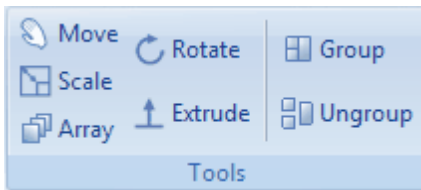
Figure 5

The Tools group involves the **standard edit functions** of the pCon.planner 6. These enable you to **move objects, to modify their size, to rotate, array, group, ungroup and extrude them.**

The functions are explained in the passage "Tools" in chapter "Furnishing with the pCon.planner".

2.2.4 Presentation Tab

The Presentation tab offers various **presentation methods** and an editor to **generate animations**.
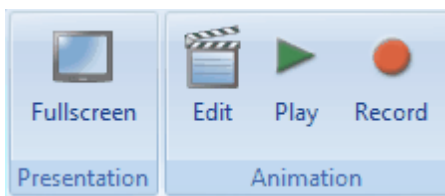
Figure 1

Presentation
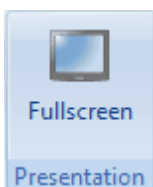
Figure 2

Click the **"Fullscreen" button** to switch to the presentation mode. This mode works in **full screen** and allows to **navigate** through the planning as well as to **switch between** the **perspectives** and **render modes**.

It was designed to **present** finished designs or designs that are still in progress **in a safe and professional way.**

Further information on the presentation mode can be found in the chapter "Presenting the planning".

Animation
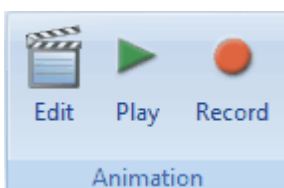
Figure 3

The Animation group contains three buttons: "Edit", "Play" and "Record".

The **"Edit"** button opens the animation editor which allows you to **generate animations.**

The **"Play"** button opens a **micro player** to play the animation.

And the **"Record"** button opens a dialog box which allows you to **play and record an animation** and to change the **animation settings**.

Further information on the presentation mode can be found in the chapter "Presenting the planning"

2.2.5 View Tab

View tab

The **View tab** (Figure 1) provides a number of **rendering and camera modes**, as well as **workspace layout options**. Also found here is the Zoom tool, which allows you to adjust the view of your planning.
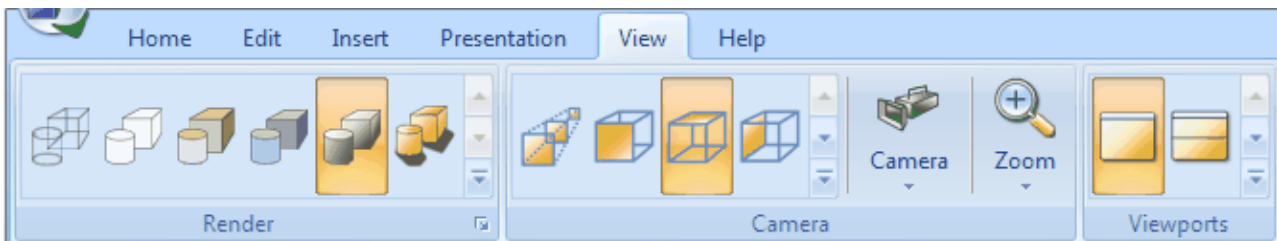
Figure 1

Render
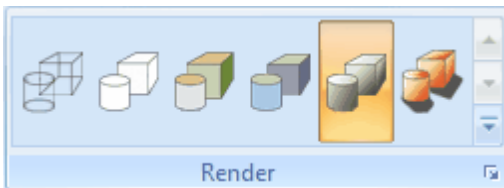
Figure 2

The pCon.planner allows you to **render and display** your drawings **in different rendering modes.** Each rendering mode has **distinct characteristics** to suit specific needs. For more information please refer to chapter "Rendering modes".

Extended Rendering Options
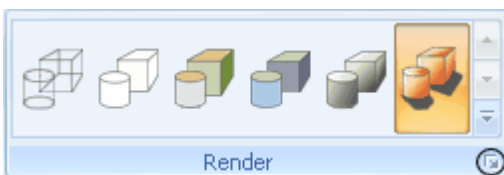
Figure 3

Click on the **icon highlighted** in Figure 3 to open the **extended rendering options dialog box.** It contains a **Presentation tab, a Quality tab and a Miscellaneous tab,** all of which allow you to **further manipulate the planning**. For more information click here.

Camera Views
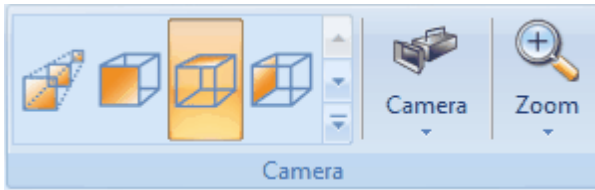
Figure 4

The camera views define the angle The **Camera group** provides **two- and three-dimensional camera projection modes** for viewing your planning within the viewports. **Additionally** to the standard camera projection modes you can **create individual perspectives** via the **"Camera" button**. Detailed descriptions on the camera projection modes are found here.

The **Zoom tool** is also found in the Camera group. For more information on how to use the Zoom tool please click here.

Viewports
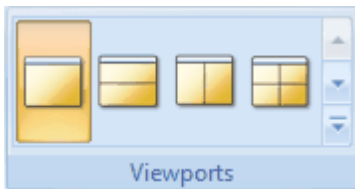
Figure 5

The **Viewports group** offers **six workspace layout options**. You can choose between e.g. a **single workspace, a horizontal split or the display of four workspaces.** To each workspace you can **individually assign** camera angles **and rendering modes**. For more information please click here.

2.2.6 Help Tab

The Help tab contains **six buttons** which will be briefly explained as follows.

Figure 1

Help group

Help

The **Help button** guides you to this Online help providing **comprehensive information** on the **software and instructions on how to use it**.

The **Online button** is a link to the **pCon.planner homepage**. Here you can find comprehensive **product information, news, updated downloads as well as a gallery**.

Click the **Online Videos** to be directed to the download website of the pCon.planner **video tutorials**. These provide some extra help on using the software.

If you face **problems with** the **software** or have **suggestions** please feel free to **contact us**. Just click the **"Contact" button** and you will be forwarded to a contact form.

Updates

Click this button to check if **software updates** are **available**. This is the **manual alternative to** the **automatic update service**, which you can access and alter via the Application Menu.

Info group

System info

Click the **System Info button** to open a window with **information on your computer**. This provides information e.g. on your **memory and processor**. You can send this information to the EasternGraphics Support if you encounter problems with the pCon.planner on your computer. This information often helps us to solve the issue faster.

About

Click this button to **display** the pCon.planner **splash-screen**. This contains **information on the current version** of the software and on **copyright.**

2.3 The Quick Access Toolbar

The Quick Access Toolbar is located in the **upper-left corner** of the user interface next to the Application Menu button. The Quick Access Toolbar allows you to **quickly access frequently used commands**.

Figures 1 displays the Quick Access Toolbar which is framed with a **red line**.
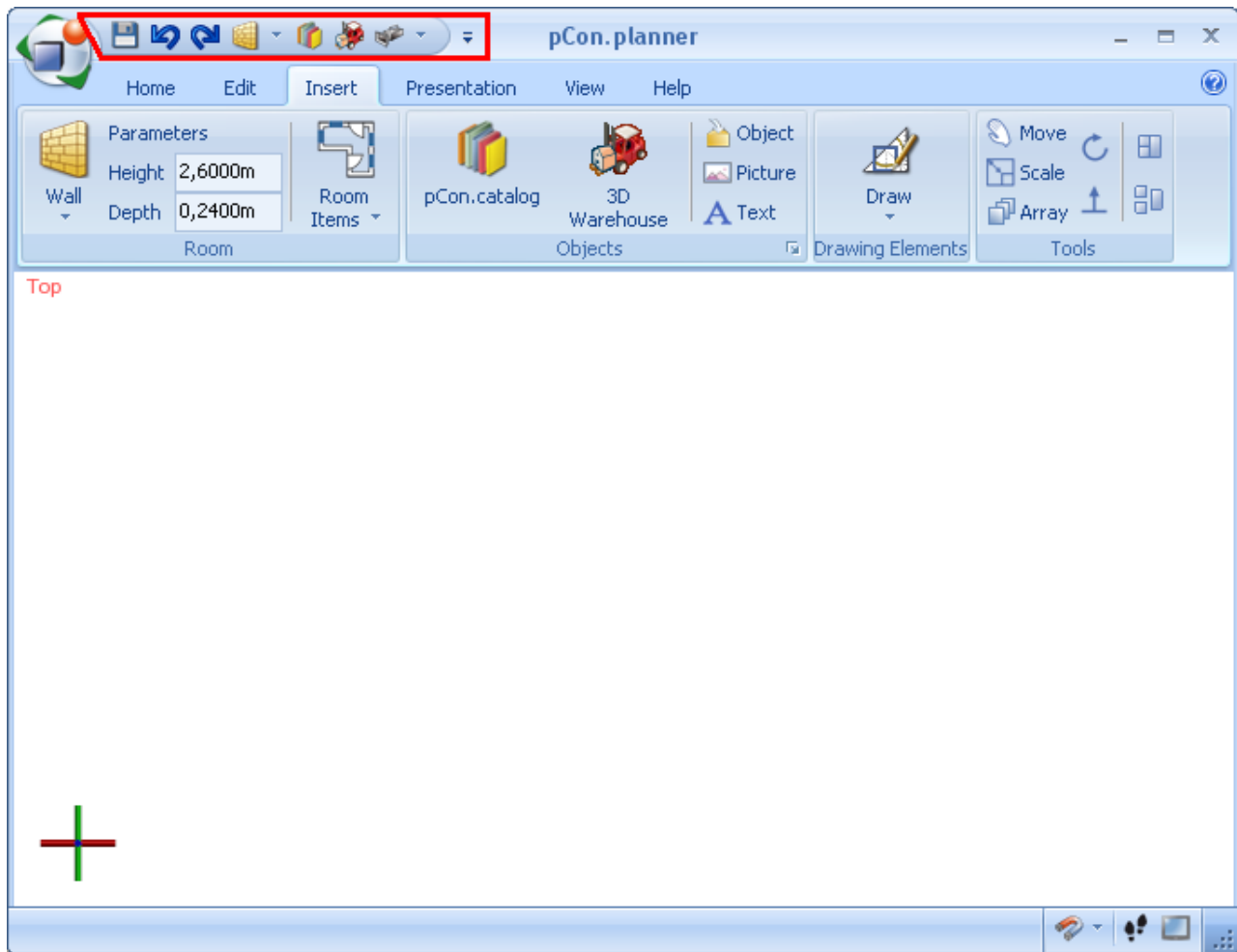
Figure 1

Contents

1. Add a command
2. Hide a command
3. Remove a command
4. Move the Quick Access Toolbar

2.3.1 Add a command

You can easily **add any command** from the Ribbon to the Quick Access Toolbar.

1. **Move** the **cursor to** the appropriate **tab** to **display the command or gallery you want to add** to the Quick Access Toolbar.
2. **Right-click the command or gallery**, then **click "Add to Quick Access Toolbar"** or **"Add Gallery to Quick Access Toolbar"** on the shortcut menu.

The command or the gallery is **now displayed** in the Quick Access Toolbar.

> **Note**
>
> A **gallery** is a **collection of functions**. The Room items gallery contains e.g. windows, doors, glass panels, and lighting options.
>
> **Once added** to the Quick Access Toolbar, a gallery is **displayed by an icon** with an **arrow pointing down**.

2.3.2 Hide a command

You can **hide or unhide commands** you have added to the Quick Access Toolbar by **clicking the down arrow** to the right of the toolbar. **Checked commands** are **displayed** in the Quick Access Toolbar, unchecked commands are not.
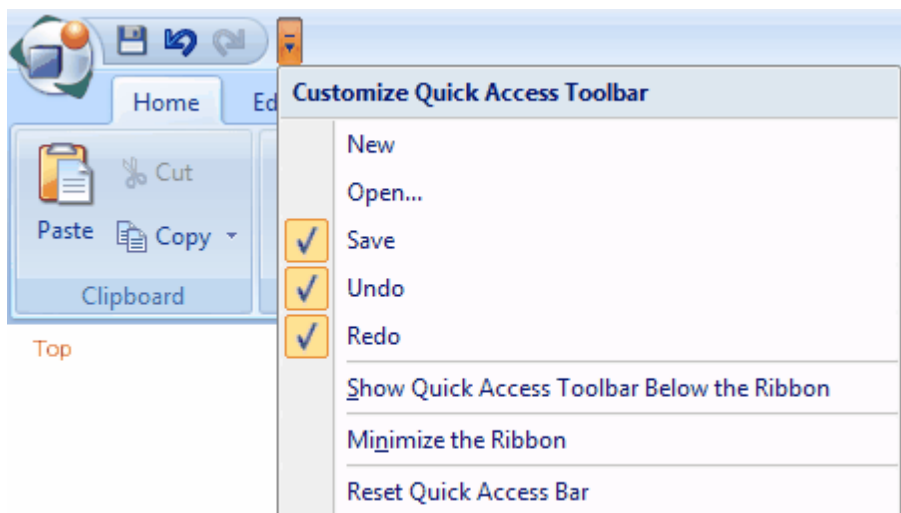
Figure 1

2.3.3 Remove a command

Commands can be **removed** from the Quick Access Toolbar e.g. when not needed as frequently any more.

To do this, **right-click the relevant command or gallery** in the Quick Access Toolbar, then **click "Remove from Quick Access Toolbar"** on the context menu. The command disappears from the toolbar.

> **Note**
>
> You can **remove the default commands** for "Undo the last operation", "Redo the last undo operation" or "Save the current drawing" **from the Quick Access Toolbar**. **To recover** these commands **right-click the** Quick Access Toolbar, **then click "Reset Quick Access Bar"**.

2.3.4 Move the Quick Access Toolbar

The **default location** of the Quick Access Toolbar is **above the** Ribbon next to the Application Menu button. **You can also place** the Quick Access Toolbar **below the Ribbon**. To **move** the Quick Access Toolbar, **right-click on any command** on the Quick Access Toolbar or the Ribbon and **click "Show Quick Access Toolbar Below the Ribbon" on the context menu.**

Likewise you can **move the Quick Access Toolbar back to its original location** above the Ribbon via the shortcut menu.

2.4 Work Area and Viewports

The **work area** of the pCon.planner (framed red) is located **below the** <u>Ribbon</u>. This is **where you draw and furnish rooms**. With the **command of the viewports group** located on the **view tab** you can **split the work area into up to four viewports**. Figure 1, for example, shows the four viewports option. Each of the viewports can be assigned a different <u>rendering mode</u> and a different <u>camera angle</u>. You can **maximize any viewport** by clicking the **little angle in the upper-right corner** of the relevant viewport (Figure 1). **Click** the angle **again** to **return to the original display** of the work area.

The **viewport with** the **red indication** of the **camera perspective** is the **active** one. All **planning steps** you carry out **directly affect this viewport**. With a **click onto** the **red indication** of the **camera view** you can **change the current camera angle**, e.g. from "top" to "right".

The **splitting of the work area** allows to look at the planning from **different angles and in different rendering modes at the same time.**
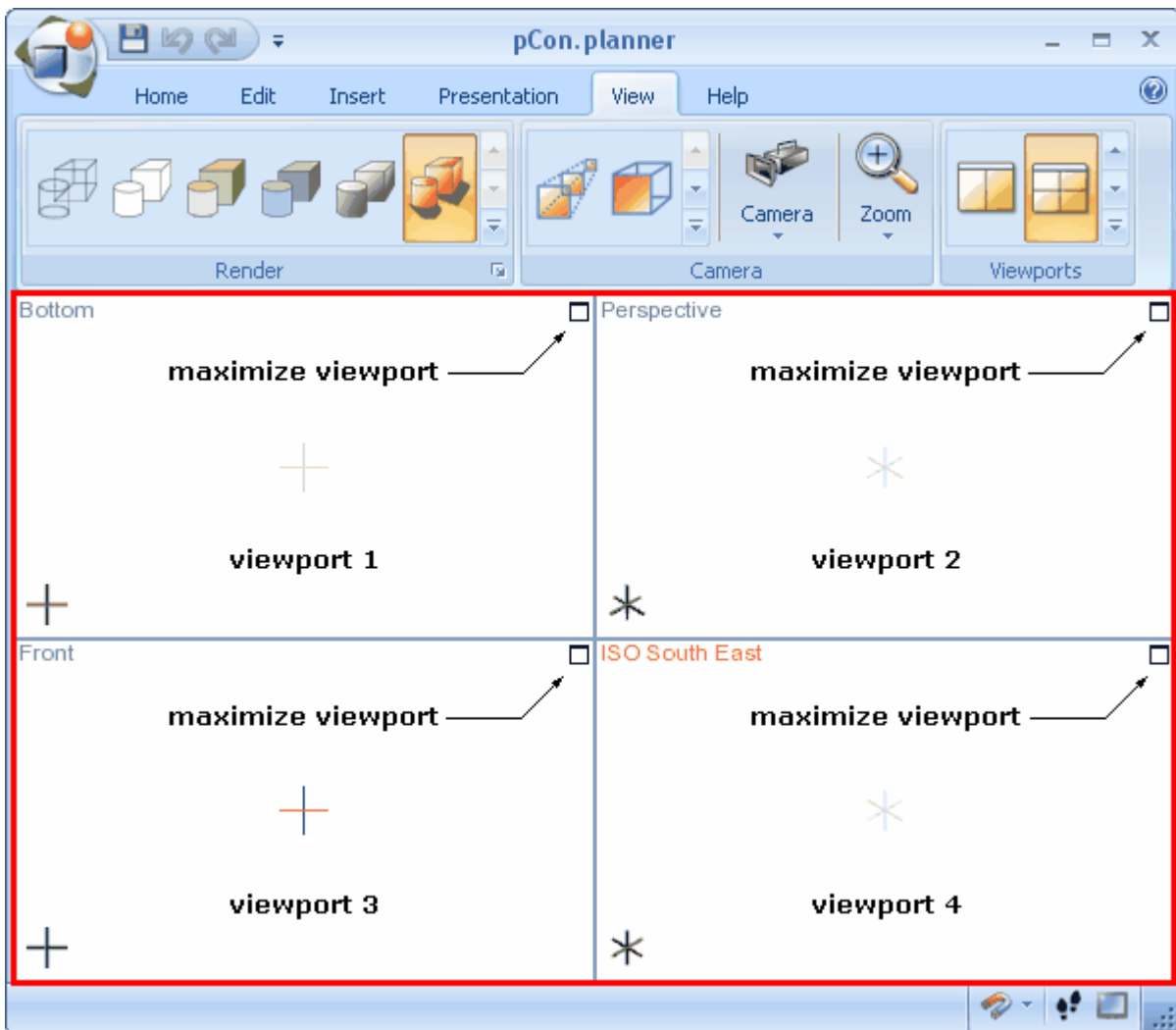
Figure 1

You can use the **mouse** or the following **keyboard shortcuts** to select the six commands in the „viewports" group.

Keyboard Shortcut	Description	Command in the menu
Ctrl + F1	The work area switches to the **„Single" view** . The active viewport occupies the entire work area.	
Ctrl + F2	Splits the work area into **two vertical viewports**.	
Ctrl + F3	Splits the work area into **two horizontal viewports.**	
Ctrl + F4	Splits the work area into **four viewports**.	
Ctrl + F5	The work area switches to the **"Overview" split**.	
Ctrl + F6	Splits the work area into **„One + three"**	

Note
The **"+"** between the keys indicates that **both keys need to be pressed simultaneously to become effective.**

2.5 The Status Bar

The status bar at the bottom of the application **visualizes** e.g. the **loading progress** when **files are opened or imported**. It also states the **file name** and – as seen in Figure 1 – gives you **practical hints** on the different tools in the <u>Ribbon</u>. Additionally, you can enable the snap mode by a click on the magnet symbol. The buttons at the right side start the Walkthrough Interactive mode (footprint icon) and the Fullscreen mode (screen icon).

Figure 1 shows the Status Bar, framed with **red lines.**
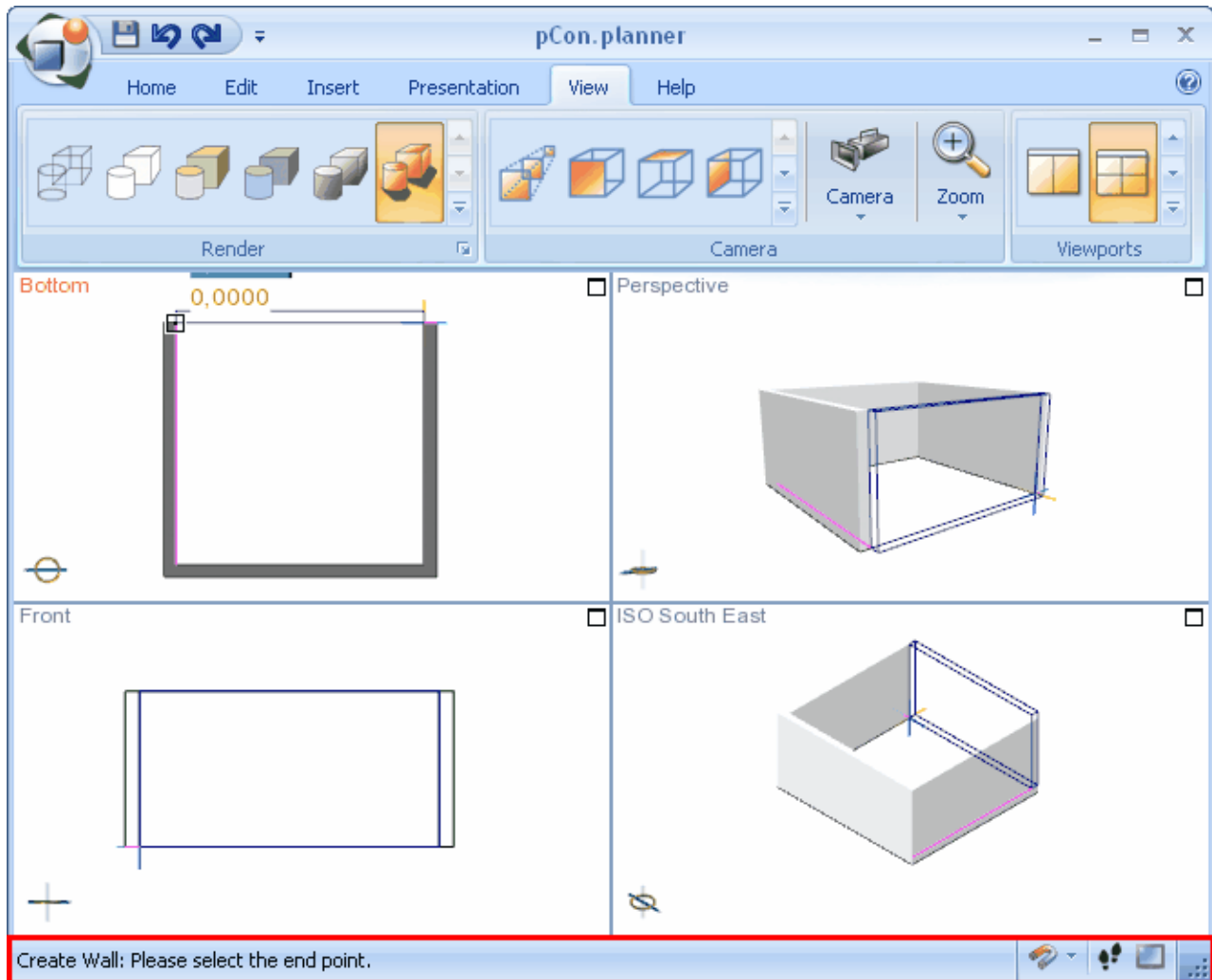
Figure 1

3 Furnishing with the pCon.planner

This chapter deals with the **interior design and furnishing planning**. From scratch you will learn how to **carry out the planning**, which important things you need to keep in mind and how to **efficiently and successfully work with the software.**

The following table of contents gives you an overview of the topics covered in this chapter.

Contents

3.1 How to use your mouse and keyboard

This article is about the **functionality of mouse and keyboard** in the software. We recommend reading this article before you start designing with the pCon.planner.

Contents

3.1.1 Mouse

Left mouse button

Same as most software, click the left mouse button to **operate commands, tools and functions.**

Right mouse button

The right mouse button **serves three purposes** in pCon.planner:

1. A **single click** of the right mouse button in the viewport **opens the Context Menu**. This offers you **several actions**, depending on the context of the current work step, for example to align the User Coordinate System, cancel an action, copy the object or lock an axis. **The entries of the context menu will be mentioned in many chapters of this online help.**

   Figure 1 displays the entries of the context menu that are available for **moving a wall**.

Move UCS	Space
Rotate UCS	V
Rotate on Object	J
Disable Object Snap	H
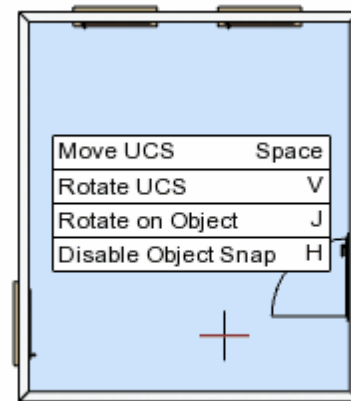
Figure 1

2. You can **customize the Quick Access Toolbar** by **right-clicking** the **Toolbar or** Ribbon. For more information click here.

3. Within the viewports, a **right-click** will **navigate you through the planning** with the PAN function . Just keep the right mouse button pressed and move the mouse. For more information switch to the chapter "Navigating in the planning".

Scroll-wheel

With the scroll wheel you can navigate through the planning project. It changes the perspective by either rotating around objects (Perspective view) or zooming (all views).

If your mouse has a **button instead of a wheel, only the rotating function** is available to you. For zooming please use the Zoom tool in the Camera group on the View tab.

> **Note**
>
> 1. If you keep the mouse **motionless** over an object or the planning space, **tool tips** pop up giving information on **the exact mouse position** over the object.
>
> 2. If your mouse **does not have a scroll wheel**, **click** the **left** mouse **button while** keeping the **right** mouse **button pressed** in order to switch to the orbit mode (swiveling movement).

3.1.2 Keyboard

Entering values, measurements and operators

When creating or editing objects (drawing, moving, scaling and so on), you can use the keyboard to **enter values, measurements or operators**, e. g. "+", "-", "*" and "/".

Values

When using <u>tools</u>, **value input fields** are displayed **close to the mouse pointer** (Figure 1). You can **change** the values by **typing in the numbers** with your **keyboard.** pCon.planner **highlights the active value**. In Figure 1 the upper value is active.

Press "Enter" to confirm the entry of the value. Afterwards the next unfixed value will be highlighted and can be modified.

To **switch between the values** use the **"Tab" key**.
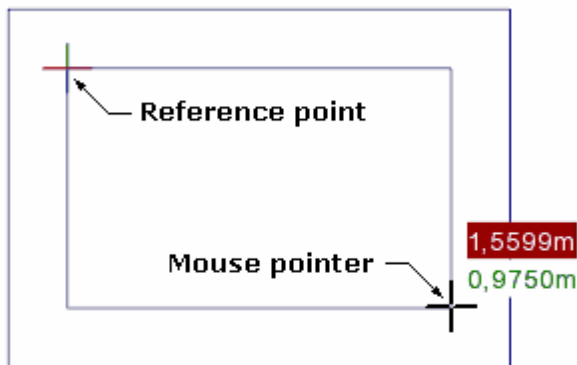
Figure 1

Figure 1

Here a rectangle room is being created. **Right to the mouse pointer** you can see the **values** 2,9248 m and 2,0980 m. They indicate the **length and the width of the room**.

When **entering a value via the keyboard**, the number that is currently **highlighted in red** will be **changed first**. With the Tab key you can switch to the next number.

Confirm each entry of a value with **"Enter"**.

Measurements

If you do **not want to use the default unit of measurement** (e. g. meter) you can **enter a new unit** right after the value. The following units of measurement are possible:

Measurement	Entry
Millimeter	mm
Centimeter	cm
Meter	m
Kilometer	km
Inch	"
Foot	'
Angle	°

Measurements can be entered at the **following positions:**

- for **all objects** (walls, room elements, drawing elements...) right **behind the values** in the value **input field**.

- for **walls** in the input fields for **"Hight"** and **"Depth"** on the **Insert tab, Room group**.

- for **all** drawn **objects** in the **Properties dialog box** right behind the values.

Operators

Another possibility to influence the measurements of an object is to **use operators**, e. g. "+", "-", "*" and "/", **in combination with a value.**

The **operator always refers to** the currently **active value**. For example, entering "+2" in figure 1 would increase the width of the room by 2 meters.

After entering the **value** you can of course **enter any unit of measurement**. Thus it would be possible to make an entry like "-3,5m".

Keyboard Shortcuts

For many tasks, the pCon.planner provides **keyboard shortcuts**. They are listed – in alphabetical order – in the following tables.

Table 1: Keyboard Shortcuts for pCon.planner 6

Shortcut	Description
Alt	Move the wall end point when drawing a wall (context menu)
Alt + F4	Quit pCon.planner
Esc	Cancel an action / quit the presentation mode
Delete	Deletes the current selection of objects
F1	Open the online help
F2	Repeat using the previously used tool, or repeat inserting room items such as door, window, floor, glass panel or lighting
F3	Open the pCon.catalog client
F4	Open the layer dialog box
F5	Open the properties dialog box
F7	Open the box for inserting objects
F9	Enable / disable "Walkthrough Interaction Mode"
F11	Open the software settings dialog box
G	Enable / disable axis snap
H	Enable / disable object snap (context menu)
Space	Move the reference point (context menu)
Space	Activate Looking around in the Walkthrough Interactive

	Mode
R, F	R: Navigate upwards in the Perspective View
	F: Navigate downwards in the Perspective View
S	Navigate backwards in the Perspective View
Ctrl	Copy selected items (context menu); Select more than one object
Ctrl + +	Zoom in on active viewport
Ctrl + -	Zoom out on active viewport
Ctrl + A	Select all
Ctrl + C/Ctrl + Delete	Copy selected elements
Ctrl + D/Delete	Delete selected elements
Ctrl + E	Start the Extrude tool after previous selection of objects
Ctrl + F1	Switch to single viewport
Ctrl + F2	Devide the work area into two horizontal viewports
Ctrl + F3	Devide the work area into two vertical work viewports
Ctrl + F4	Devide the work area into four viewports
Ctrl + F5	Devide the work area into "view"
Ctrl + F6	Devide the work area into "one + three"
Ctrl + G	Group a selection
Ctrl + I	Invert selection
Ctrl + L	Start the Scale tool after previous selection of objects
Ctrl + Space	Show full extend of the active viewport
Ctrl + M	Start the Move tool after previous selection of objects
Ctrl + N	Create new drawing
Ctrl + O	Display the Open dialog box to load files
Ctrl + R	Start the Rotate tool after previous selection of objects
Ctrl + S	Save current drawing
Ctrl + U	Ungroup selected items
Ctrl + Shift + C	Copy a picture of the active view
Ctrl + Shift + F1	Switch to camera view "Perspective
Ctrl + Shift + F2	Switch to camera view "Front"
Ctrl + Shift + F3	Switch to camera view "Top"
Ctrl + Shift + F4	Switch to camera view "Left"
Ctrl + Shift + F5	Switch to camera view "Right"
Ctrl + Shift + F6	Switch to camera view "Rear"
Ctrl + Shift + F7	Switch to camera view "Bottom"
Ctrl + Shift + F8	Switch to camera view "North East"

Ctrl + Shift + F9	Switch to camera view "North West"
Ctrl + Shift + F10	Switch to camera view "South East"
Ctrl + Shift + F11	Switch to camera view "South West"
Ctrl + Shift+ Space	Show full extend of all viewports
Ctrl + Shift + S	Open the Save-as dialog box
Ctrl +V/Shift + Insert	Paste selection
Ctrl+ X/Shift + Delete	Cut selection
Ctrl + Z	Undo an action
Ctrl + Shift + Z	Redo the last undo operation
Ctrl + Y	Perform Array tool
Tab	Move between values, that appear next to the mouse pointer when using a tool, e. g. values for height, length, depth, curve, or angle
Shift	Lock / unlock axis (context menu)
Shift + F1	Switch active viewport to the Wireframe Mode
Shift + F2	Switch active viewport to the Hidden Lines Mode
Shift + F3	Switch active viewport to the Colored Mode
Shift + F4	Switch active viewport to the Conceptual Mode
Shift + F5	Switch active viewport to the Shaded Mode
Shift + F6	Switch active viewport to the Realistic Mode
V	Rotate reference point / return to original orientation (context menu)
W, A, S, D (or arrow keys)	W or down arrow: Move forward in the Perspective view A or left arrow: Turn to the left in the Perspective view S or up arrow: Move backwards in the Perspective view D or right arrow: Move to the right in the Perspective view

Table 2: Keyboard Shortcuts for pCon.catalog

Shortcut	Description
ALT + C or Ctrl + B	Open Bookmark Manager
ALT + S	Open Settings dialog box
ALT + M	Go to home page
ALT + left arrow / backspace	Go back one page
ALT + right arrow	Go forward one page
ALT + Z or Ctrl + D	Set bookmark
Esc	Stop page loading
F6	Set input focus at address bar

F5 / Ctrl + R	Reload page
Ctrl + T	Open new tab
Ctrl + P	Open print dialog
Ctrl + W	Close current tab (if more than one tab is displayed)
Ctrl + .	Switch tab rightwards
Ctrl + ,	Switch tab to the left

Note

1. If **two or more keys** are **separated by a plus sign (+)**, they need to be **pressed simultaneously** to activate the shortcut.

2. You may know the **WASD** keys from navigation in some computer games. **Alternatively** to WASD you can use the **arrow keys**. For more information on WASD click <u>here</u>.

3.2 Select objects

Working with objects in your planning always requires to **first select them**. That's why this chapter deals with the **different methods of selecting objects** as well as the object structures that are directly related to selection.

Contents

3.2.1 Object structures

Every element that you create with, or load into pCon.planner, **consists of variable amounts of edges** (lines) **and surfaces**. The rectangle in Figure 1, for example, has one surface which is bounded by four edges.

The edges are **defined by a number of snap points**, which become visible when moving the mouse pointer over any edge.

Snap points are found **at the ends and mid points of an edge**, at a **point of intersection**, but also **all along an edge** (displayed as an X in Figure 1).

These snap points are helpful for a number of operations. They are especially **important for the alignment of objects**. For **more information** click here.
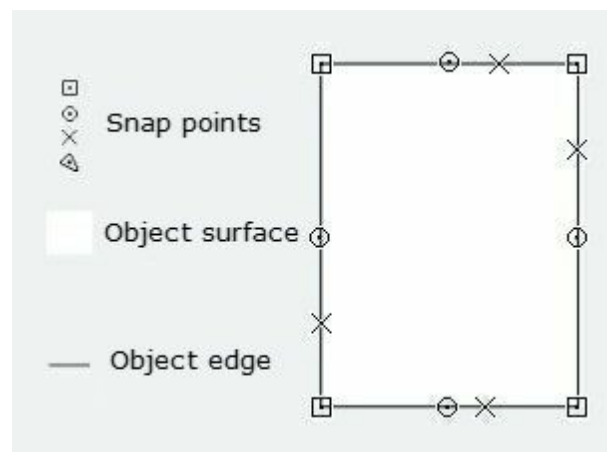

Figure 1

3.2.2 Methods of selecting

Objects can be selected by **clicking or by dragging selection rectangles around the objects**. Both methods are explained below:

Selection by mouse click

One option for selecting objects in the pCon.planner is **via mouse-click**. Simply **click the surface** (if applicable**or the edge** of an object.

If you want to **select more than one object**, **hold down the Ctrl key** as you click additional objects. With this method you can select any number of elements within the planning project. The advantage of this selection method is that you can accurately determine which objects you want to select.

Figure 1 shows four rectangles, two of which have been selected by mouse-click while holding down the Ctrl key (highlighted in red).
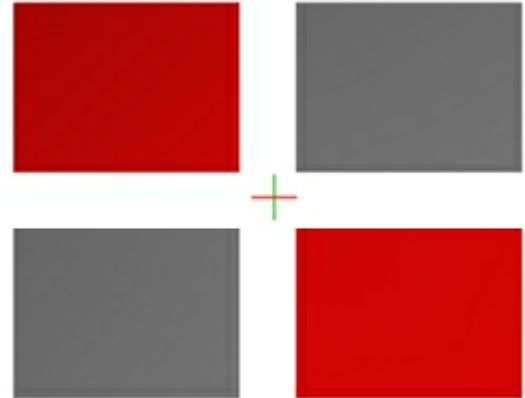

Figure 1

Note

1. **Selected objects** are **highlighted with a color**, which makes them distinguishable from unselected objects.

2. If you are working in the **Wireframe mode**, there are **no surfaces between the edges**. Therefore only the edges are available for clicking.

Selection by keyboard shortcuts

You can use the keyboard shortcut **"Ctrl + A"** to **select all objects** of a drawing. **"Ctrl + I"** **inverts** a **selection** and **"Esc" cancels** the **selection**.

Selecting by selection rectangles

The second option for selecting objects is by **dragging a rectangle around them**. **Hold the left mouse button and move the mouse pointer**. This generates a **red or green rectangle**.

The rectangle is **red** when you **start in the upper-left** and drag it to the lower-right. This **selects only objects that are entirely within the rectangle**. In Figure 3, therefore, only the two objects on the top are selected.

When you **start** the rectangle in the **lower-right** and drag it to the upper-left, it is **green**. This **selects all objects** that are **entirely and partly** within the rectangle. In Figure 3, therefore, all four objects are selected.
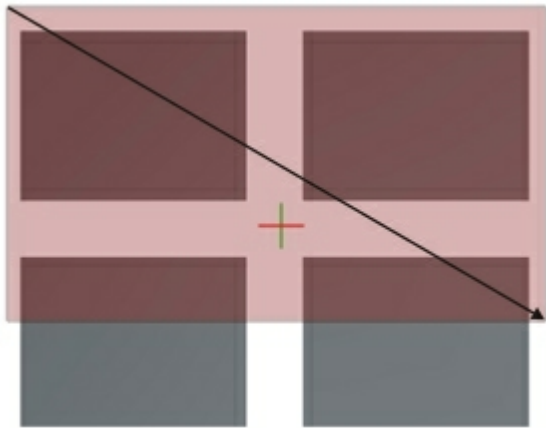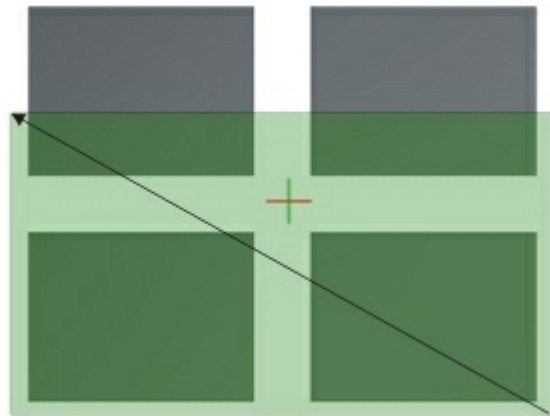

Figure 2

Figure 3

3.3   Tools and functions

The pCon.planner provides you with **different instruments to customize** your **room** and **furnishing elements** according to your own plans and ideas.

The **first chapter** introduces the pCon.planner **tools**. The knowledge of their basic modes of action will enable you to do your first experiments with the software.

The **second chapter** shows you which **functions** can be applied to your objects and what they are useful for.

Contents

3.3.1 Tools

This chapter **introduces** the **six pCon.planner tools** which you need to **modify objects**. The focus of this chapter is on **basic explanations** of the way these tools work to get you started with the software as easily as possible.

For **more detailed information** on how to work with the tools please go to chapter "Create and furnish rooms".

3.3.1.1   Draw

With the Drawing tool you can **create walls** and a number of **two-dimensional (2d) and three-dimensional (3d) objects**.

These are the basic steps for drawing:

1. In the <u>Ribbon</u> (Edit or Insert tabs) **click** the **wall icon or one of the 2d or 3d elements**, e. g. line or rectangle, to **start** the relevant drawing tool.

2. **Move** the mouse pointer **into one of your** <u>viewports</u>. The regular mouse pointer now changes to one of the symbols in Table 1. The **coordinates for the position of the mouse pointer** as well as the **position of the green, red and blue axis** are displayed.

3. **Click** the <u>viewport</u> to mark the **starting point** of the object. **Alternatively** you can **enter exact values** via the <u>keyboard</u>.

4. **Move** the **mouse pointer** across the <u>viewport</u>. This **adjusts the size of your object** in all applicable dimensions (length, width, depth).

5. **Click again to finish** the drawing process.

Along with the freehand drawing described above you can also <u>enter precise values</u>. This way you can accurately assign starting point, length, width and depth of the object.

Enter the values by **typing the numbers on the keyboard**, and then **press Enter**. Press the **Tab key** to **jump** between the displayed values.

Table 1

Wall	Rectangle	Polygon	Line	Circle	Ellipse	Arc	Point	Measurements	Spere	Cone

Note

1. For the objects **wall, polygon, line and measurements** the drawing tool will not be quitted right after creating the element. Thus you can continue to create further elements right away.

2. **To quit or cancel** a drawing process of walls, polygons, lines or measurements **use the entries of the** <u>context menu</u>. Press the right mouse button to open the context menu.

3.3.1.2 Move

Elements within your planning project **can be moved** to be positioned and arranged as you wish.

Figure 1 shows the **moving of a wall** (red object). It also features a **reference point**, the **starting point** of the movement, and the vertical and horizontal distance of the **current position** of the **mouse pointer to the reference point**.

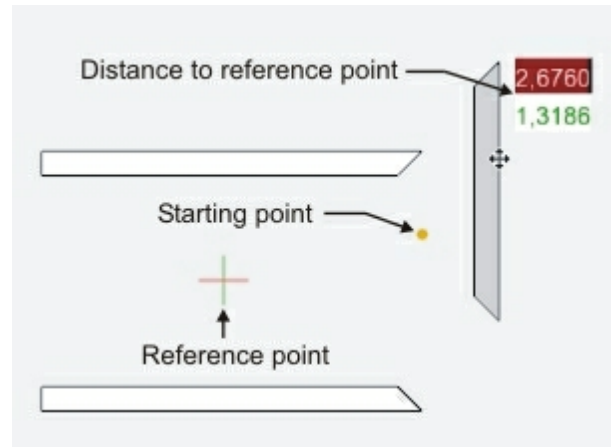You have **three options** for moving an object, which will be described as follows.

Distance to reference point — 2,6760
1,3186

Starting point —

Reference point

Figure 1

Option 1:

1. You <u>select</u> the **object** to be moved and **click it again** (edge or surface) to activate the Move tool.
2. **Click on any point** in the <u>viewport</u> and **move the mouse** to re-position the object in the planning.
3. **Click** where you want to **place the object** to finish the move.

Option 2:

1. <u>Select</u> the **object** to be moved, and then **click the Move tool** in the Tools group (Edit tab).
2. **Click** the **desired position** of the object **to move** the object.
3. **Left-click** to finish the move.

Option 3:

1. **Click the edge** of an unselected object and **hold the left mouse button**. **Begin the move**.
2. Once you have started the moving, you can **let go of the left mouse button** and still **move the object around**.
3. **Click** where you want to **place the object** to finish the move.

 Note

1. **Figure 1** shows the **starting point** of the movement, which is where the mouse pointer was at the time of clicking to start an action.
2. Along with the freehand moving options as described above you can <u>enter precise values</u>. This way you can **accurately assign the position** of the object. Enter the values by **typing the numbers on the keyboard**, and then press enter. Press the tab key to jump between the displayed values.

3.3.1.3 Rotate

You have **two options** for rotating objects in the planning project.

Option 1:

1. **Double-click** an object to start the Rotate tool.

2. The **reference point** – surrounded by a yellow circle – is located where you double-clicked the object (Figure 1).

3. **Click again** to define the location of the **starting point** for the rotation (Figure 1).

4. At this point you start with the rotation of the object by **moving the mouse pointer**.

5. The number right next to the mouse pointer is the **value of the rotation in degrees** (Figure 1).

6. At the desired angle **click again to finish** the rotation.
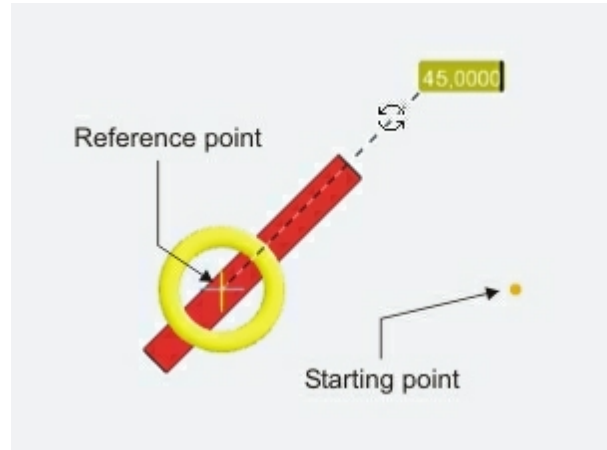
Figure 1

Option 2

1. Select **the object** to be rotated.

2. Click the **Rotate command** in the **Tools group** on the Edit tab.

3. **Click** anywhere in the planning to **start** the rotation tool.

4. Move the mouse pointer to the desired angle and **click** to determine the **starting point** of the rotation.

5. **Move the mouse pointer to rotate** the object to the desired angle and **click to finish** the rotation.

Note

Along with the freehand rotation as described above you can also enter precise values. This way you can **accurately assign starting point and angle of the rotation**.

Enter the values by **typing the numbers on the keyboard**, and then **press enter**. Press the **tab key to jump** between the displayed values.

3.3.1.4 Scale

With the Scaling tool you can **increase or decrease the size of the objects** in the planning. The tool is located in the Tools group on the Edit tab.

There are **two ways** to scale objects. You can either use Scale Interactors or determine a distance to influence the dimensions of the elements. Both methods are explained below. The third part of this article explains the use of scale axes. They help you to scale objects proportionally or only in one dimension.

Scaling with Interactors

1. Select **the object** that is to be scaled.

2. **Click the Scale tool** in the Tools group on the Edit tab. The corners of the selected object appear as yellow dots (2D) or yellow balls (3D) - so-called **Scale Indicators** (see Figure 1).

3. To **change the size** of the object, **click** the appropriate **indicator** and **move the mouse** pointer.

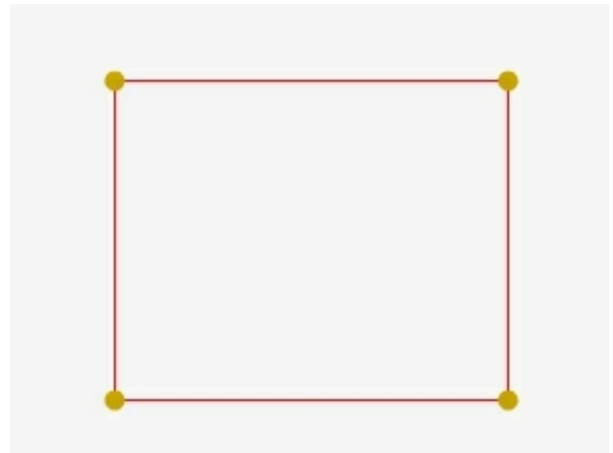4. **Click again to finish** the scaling.

Figure 1

Figure 2 illustrates the **proportional increase** of a rectangle using the **interactors** and the **diagonal scale axis**. (see below)

You can see the **starting point** (from where the scaling starts). In the **catercorner** of the starting point you can see the **reference point** (zero point).

The **two values next to the cursor** indicate the **current size of the object** (in relation to the reference point), which modify when you move the mouse.

Furthermore you can see a **diagonal axis** which helps you to **scale** the rectangle **proportionally** and a **red arrow** which indicates the **direction of the scale process**.
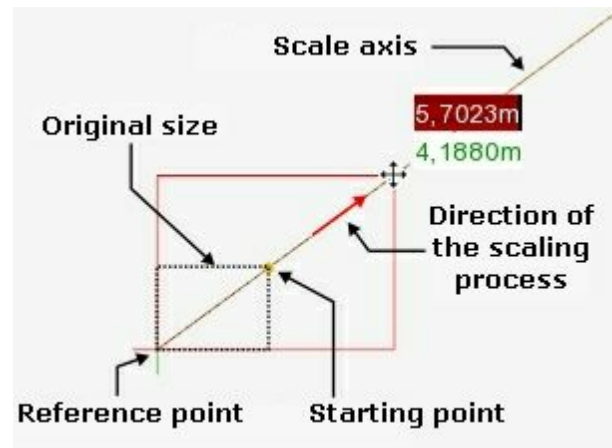

Figure 2

Scaling with distances

1. **Select the objects** you want to scale.

2. **Click "Scale"** in the Edit tab to **start** the **scale tool.** The corners of the selected object appear as yellow dots (2D) or yellow balls (3D) - so-called **Scale Indicators** (see Figure 1).

3. **Click** in the viewport to **define the starting point** of the **distance** that serves as basis for the scale process.

4. **Move** the **mouse to determine** the **distance** and click again to set its end point.

5. Now **move** the **mouse within the** viewport to **start the scale process** of the object.
   If you want to use the **scale axes** to modify the dimensions of an object (see bottom article of this page), you need to **move the mouse around the distance line between reference point and start point**. Depending on the position of the cursor an axis for uniform or for unidimensional scaling will be displayed. For better distinguishing the **axis for the unidimensional scale process is always yellow.**

Figure 3 illustrates the increase of a 10 x 10 m rectangle (dotted line) to a size of 15 x 15 m.

First the **virtual line** described in items 3 and 4 **was defined.** It is represented by the **distance between reference point and starting point** and is 10 m long**.**

Then the **mouse** was **moved along the uniform scale axis (yellow) up to a length of 15 m.**

The movement of the axis leads to the **proportional increase of** the **rectangle.**

A final mouse click would now **confirm** the **new size** of 15 x 15 m and finish the scale process.
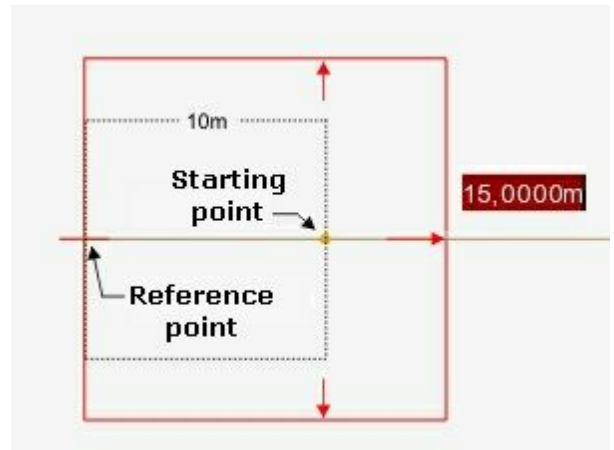
Figure 3

Using scale axes

As already mentioned above, you can use scale axes to scale objects. They help you to modify the size of an element proportionally or in only one direction.

The proportional (uniform) scale axis becomes visible as soon as the cursor is moved along the virtual line between starting and end point. **Figure 4** illustrates the **scaling of a 2m x 2m square**. The upper right interactor was used as starting point. If you move the cursor along the line between starting and reference point, the square will be scaled proportionally.

Furthermore, there are a **horizontal and a vertical scale axis**. They become visible whenever you move the cursor by **0°, 90°, 180° or 270°** around the starting point.

Figures 5 shows the **horizontal scale axis** along which the 2 m x 2 m square is made wider (not longer).

If you moved the mouse in the vertical direction, a vertical scale axis would become visible. You could then modify the length.
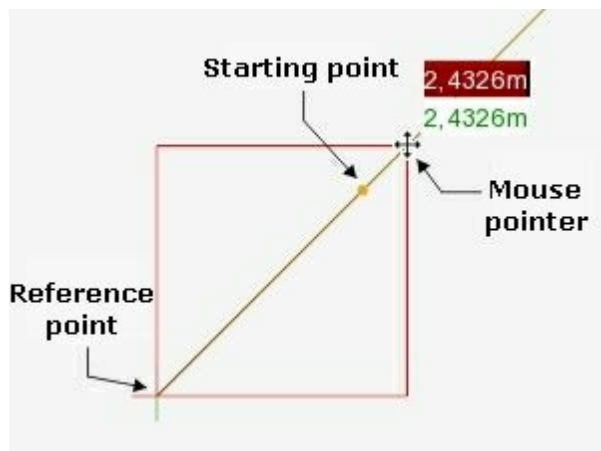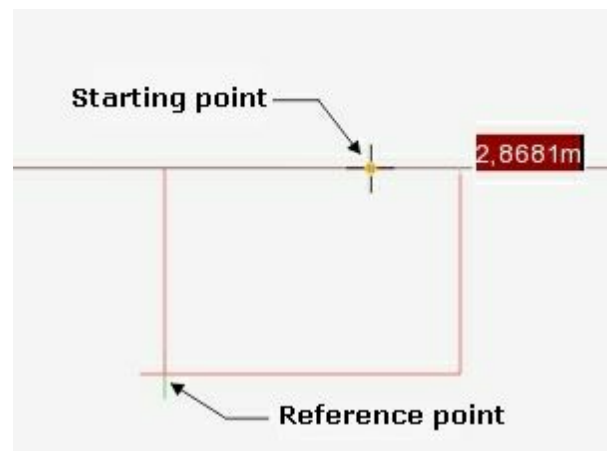
Figure 4

Figure 5

Note

1. Along with the freehand scaling described above you can also <u>enter precise values.</u>

2. The <u>context menu</u> enables you to **enlarge an object by a factor**. Click "**Input Factors**" in the context menu.

3. The **Scale Interactors** can be **enabled or disabled** in the <u>context menu</u>**.** To **disable** them click **"Hide Scale Interactors"** in the context menu.

4. Please click <u>here</u> for information on scaling walls.

3.3.1.5 Extrude

Extrusion turns **enclosed two-dimensional objects** into **three-dimensional structures**.

You can turn squares into **cubes or circles into columns.**

Figure 1 shows a **rectangle** that was extruded into a **cuboid.**

With pCon.planner you can **extrude rectangles, circles, ellipses, polygons and polylines (interconnected lines).**

167,4081m
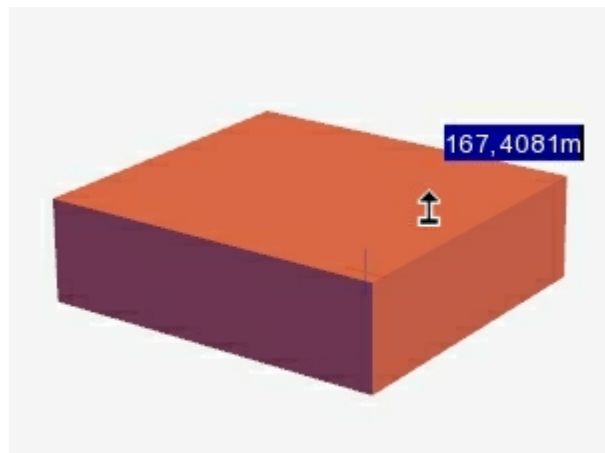
Figure 1

Follow the steps below to extrude such structures:

1. <u>Select</u> **the object** you want to extrude.

2. **Click** the **Extrude tool** in the Tools group on the Edit tab.

3. **Move** the **mouse pointer** to the **surface or edge** of the two-dimensional object. You will see the mouse pointer change its shape (Figure 1).

4. **Click the edge or surface** to **start** the **extrusion** process.

5. **Move the mouse pointer** to extrude the object **or** <u>enter a precise values</u>.

6. **Click to finish** the extrusion **or press Enter** to confirm the value.

Note

1. **Once extruded**, an object **cannot be extruded further**.

2. If you want to **extrude two-dimensional objects** that were **drawn without a surface**, or if you want to **extrude polylines**, you have to **click the edges to start the extrusion process**.

3.3.1.6 Curvature

The Curvature tool allows to **curve walls or arcs in a wall** via Curve Interactors.

This tool **only applies to walls** and is therefore not found in the Tool group on the Edit tab.

Figure 1 shows a curved wall including height (H) and radius (R).

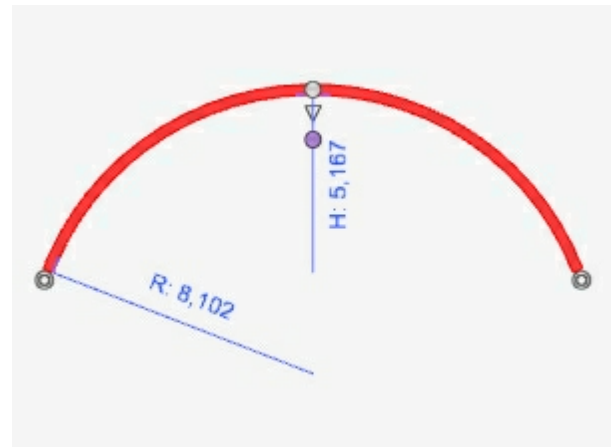For more detailed information on how to curve walls please refer to chapter Curving walls.

Figure 1

3.3.1.7 Array tool

The Array tool allows you to copy an object or group of objects unlimited times in a drawing. The Array tool applies to all types of objects (walls, doors, furniture...)

This tool makes it very easy for you to create window fronts or to arrange chairs in the theater style.

The array tool is described below with an example (figures 1 to 4).

1. **Select the object** of which you want to create an array.

2. First **define the axis** along which you want to align the array of objects (steps 2 and 4). The axis requires **two points**:

   Click "Array" in the Tools group on the Edit tab. **Define the first point of the axis** by mouse click on the desired point in the viewport.

   In our example the first point coincides with the upper left corner of the object (Figure 1).

Figure 1

3. **Define the second point** of the axis by mouse click or enter the exact distance and angle. Please note that the values you enter refer to the coordinate system in point 1 (see black circle with highlighted axes in Figure 2).
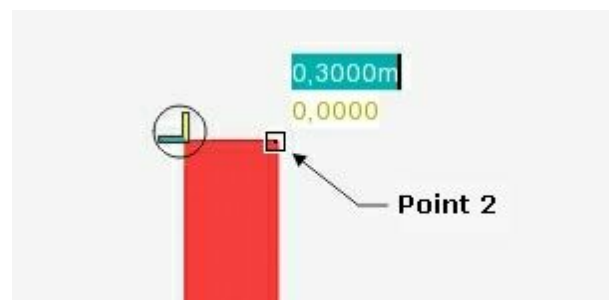
   In our example the second point is

Figure 2

placed 0,3 m away from point 1. The angle is 0°.Click to confirm this point.

4. After you defined the second point the **origin of the coordinate system is moved to this point.**

Furthermore, **a copy of the original object** was **created**. Its upper left corner coincides with point 2.

Figure 3

The current distance (highlighted in red) between the two objects is 0 m. You can now **change the distance by entering a new value or moving the copy manually**.

We recommend you enter the distance between original object and its copy by keyboard.
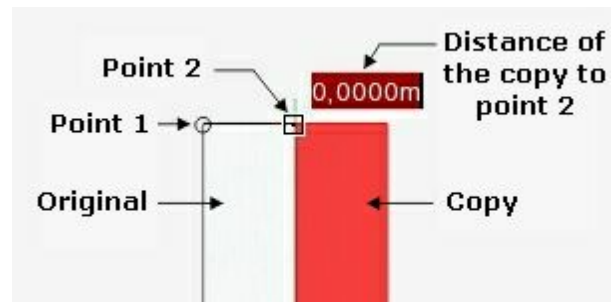
5. In our example we defined a distance of 0,2 m. Now **enter the number of copies** that are to be placed in the array.

Type in a number and confirm by Enter.

Figure 4 illustrates a completed array that consists of four elements with a distance of 0,2 m between each object.
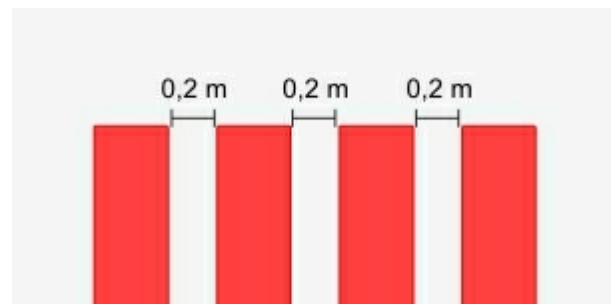
Figure 4

3.3.2 Functions

This chapter introduces the **different functions of the pCon.planner** and explains how to use them effectively.

Contents

1. Group and ungroup objects
2. Control visibility
3. Global edge softening
4. Assign colors
5. Assign and edit textures
6. Edit properties

3.3.2.1 Group and ungroup objects

The **Group and Ungroup commands** are found in the **Tools group on the Edit tab**. They allow to **group or ungroup several elements** before further processing.

Single objects can consist of several elements. A table, for example, may consist of a table top, some framework and several legs. The Ungroup function can break a table into its pieces to allow adjusting each piece individually.

Grouping all elements, on the other hand, allows to modify the table as a whole, e.g. the size of the table.

The Group and Ungroup functions therefore are a prerequisite for processing objects at a certain level of detail.

To group or ungroup elements follow the steps below.

1. Select **the object or group of objects** that are to be grouped or ungrouped.
2. **Click the Group or Ungroup commands** in the Tools group on the Edit tab.

3.3.2.2 Control visibility

pCon.planner 6 offers **two methods** to **control the visibility of objects**:

1. via layers

2. via selections.

Both methods are explained below.

Layers

Layers dialog box

Similar to other software, the **two- and three-dimensional data** in pCon.planner is **organized in variable numbers of layers** to comply with the specific needs of designing.

Click the Layer button (group Visibility / Edit tab) to **open a dialog box** with all current layers in the planning project (Figure 1). You can **decide which layers are to be visible and which are not**.

Figure 1

Docking function

The more complex the drawing the more often the layers dialog box is needed. It may even be needed permanently. Therefore the **Layers dialog box** can be **docked onto every side of the work area and minimized.** Just drag the dialog box to the required position. Figure 2 illustrates the Layers dialog box which is docked onto the left side of the work area.
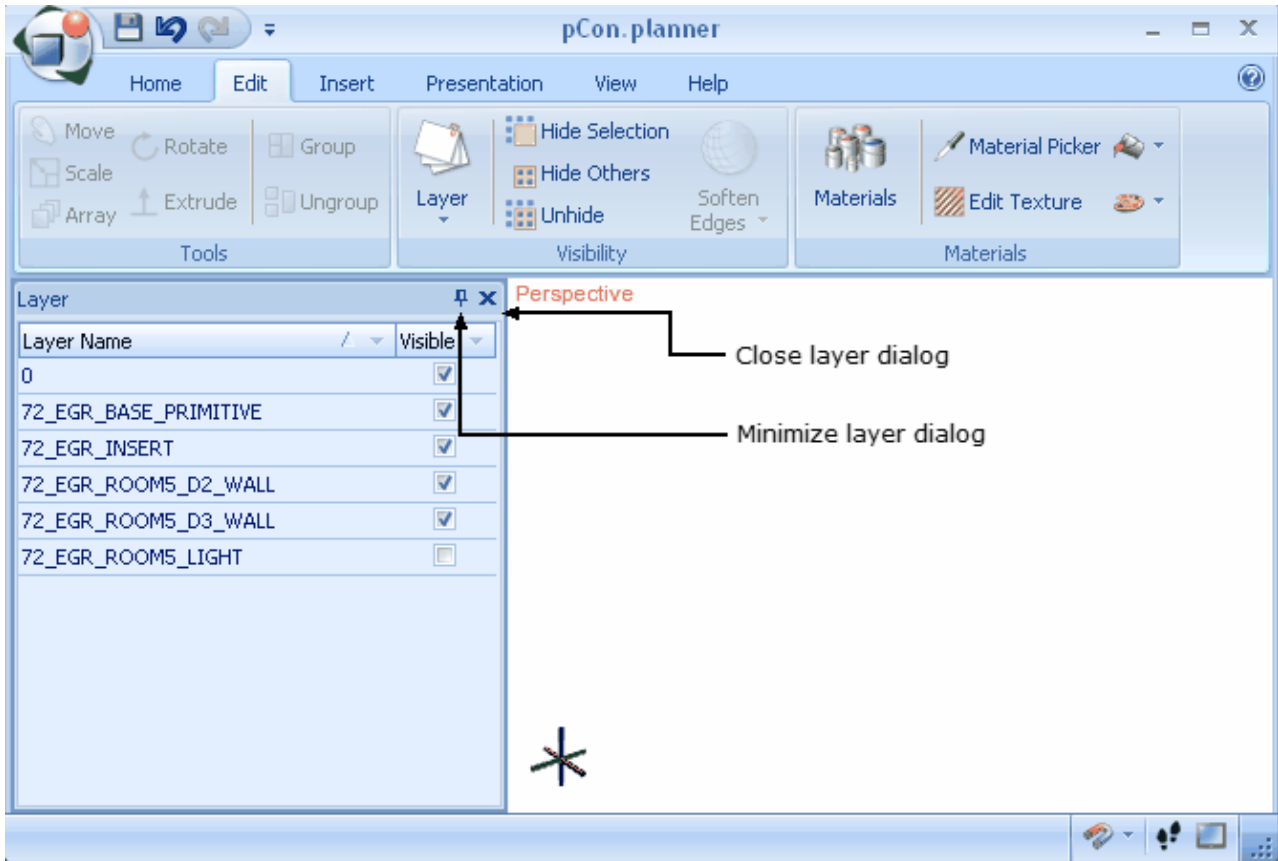

Figure 2

Quick Access to layer control

Click the **arrow below** the **layers button** to open the **Quick Access to the layer control.**

This feature enables you to **show or hide 3D-walls, lighting elements, cameras** as well as **all objects on 3D and 2D layers**. You do not need to open the Layers dialog box where you would have to select the items manually.

Figure 3 illustrates the currently active layer (lighting - highlighted) and the two inactive layers.
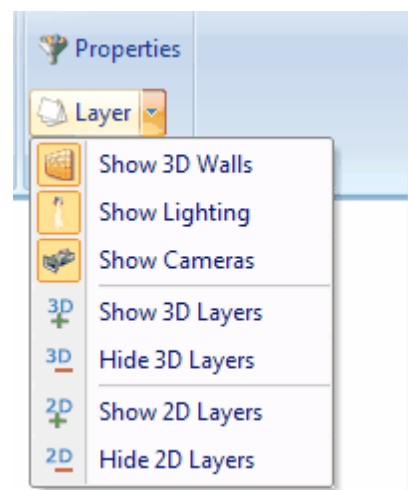
Figure 3

Selections

Hide Selections and Unhide

The **Hide Selection command** (Visibility group on Edit tab) **hides all selected objects** within a planning. This is especially helpful when you want to temporarily simplify your planning to get easier access to certain elements.

Click the **Unhide** tool to **make all objects visible that you have previously hidden**.

Hide Others and Unhide

The **Hide Others** command **hides all elements that are not selected**.

Click the **Unhide tool** to **make all objects visible that you have previously hidden**.

Note

Changes that you carry out in your planning **only affect visible elements**. **Hidden objects** are **excluded from operations**. **Saving** the document, however, **saves all data, including hidden** objects.

3.3.2.3 Edge softening

Objects in pCon.planner 6 are constructed of **edges and surfaces**. You can **determine** the **rendering mode** as well as the **amount of edges to be displayed**. Edges can be displayed in all rendering modes now, including the Concept mode, the Shaded mode and the Realistic mode. Further information can be found in the chapter "Show outlines". On the other hand you can **reduce the amount of displayed edges** of all objects of your drawing, but also of single selected objects. This is done with the function **"Soften edges".**

Reducing the edges is possible in the range of **0 to 180 Degrees**. The **lower** the value the **more edges** are displayed. At 0 Degrees all edges of the object are displayed. At 180 Degrees only the frame lines are displayed.

The **default setting** of the frame reduction is **20 Degrees**. Thus, specific small details of objects are not made irrecognizable by too many lines.

But the degree depends on your specific demands, the individual use of the objects and the object itself. So it is more efficient to adjust the degree of the edge softening individual for every object.
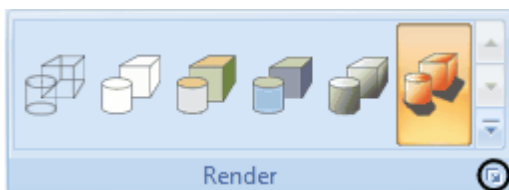

Figure 1

To **soften the edges** for **all objects**, open the View tab. Click the small **down arrow** in the **Render group** (Figure 1).

The **Rendering dialog box** opens. Select the **"Quality" tab**. The global
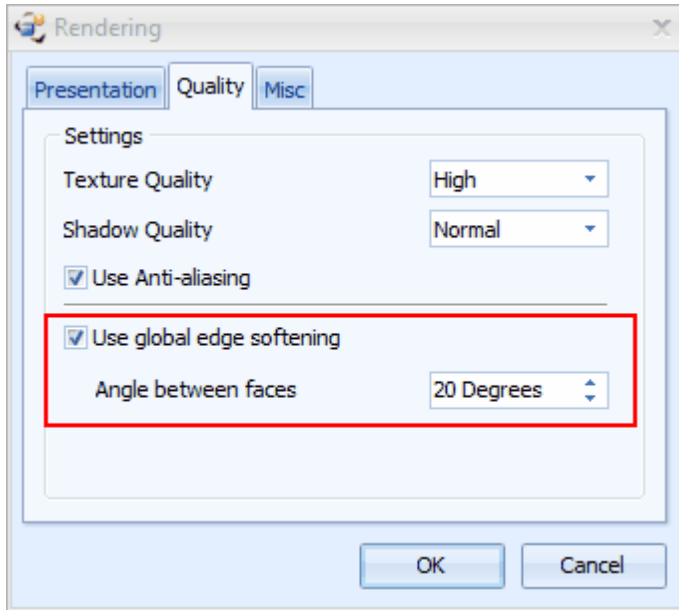
Figure 2

edge softening is frames in red in figure 2. You can **enable or disable** the global edge softening. When you **enable** it you can **set an angle** between 0 and 180 Degrees. Your setting applies to **all objects** except to those that you have already assigned an individual edge softening.
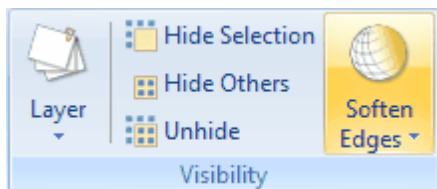

Figure 3

When you want to **soften** the **edges** of a **single object**, **select** the **object** and click **"Soften edges"** on the **Edit tab.** (Figure 3)
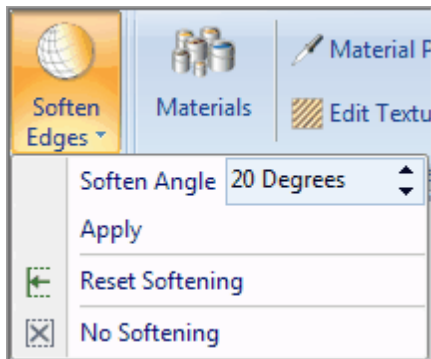

Figure 4

A **context menu** opens. **Set a soften angle** between 0 and 180 Degrees. Click **"Apply"** to assign the setting to the **selected object** independently from the global edge softening. Click **"Reset Softening"** to **automatically apply** the **global setting**.

If you click **"No Softening"** the **Soften angle** will automatically switch to **0 Degrees** so that the maximum amount of edges is displayed.

The following pictures demonstrate the use of several settings. They are only examples. The number of variations is uncountable.

Figure 5 shows an office chair in the **Realistic mode without the edges displayed**.

The following 6 figures illustrate the functionality of the "Soften edges" function.

Please note that each setting looks different with every object. There are no optimum values for the single purposes.

Figure 5

Figure 6 shows the same office chair in the Hidden Line **mode** and in three different stages of edge softening.

Figure 6

The soften angle is **0°.**

This is interesting for **construction**.

Figure 7

Figure 7 displays the same chair with a soften angle of **20°**. This is the **default angle**.

This setting is suitable for presentations.

Figure 8

In this case the soften angle is **180 °**.

This setting is applicable for simple concept studies.

The following pictures shows the same office chair in the Realistic mode with displayed edges in three different intensities.

Figure 9

Office chair **with displayed edges** and **without edge softening.**

This is primarily suitable for **construction** purposes.

Figure 10

In this picture the soften angle is **20 Degrees**.

This is also suitable for **construction purposes**

Figure 11

Figure 11 shows the office chair with the max. soften angle - **180 Degrees**.

This setting is very good for the **presentation**.

3.3.2.4   Assign colors

The Colors tool of pCon.planner 6 was designed for a number of different applications and can therefore be used for various purposes.

Assign colors to single objects

Via the function "Fill Color" you can **assign colors to the objects** in your planning.

To do this, follow the steps below.

1. **Click** the **Color button** (Materials group on the <u>Edit tab</u>) and **click one** of the provided **colors** or define a color.

2. When you move the mouse pointer onto the work area, its shape turns into a color bucket

   , which tells you that the tool is active.

3. **Click** the **objects of which you want to change the color.**

4. To **quit** the color tool press the **Esc key** or click another tool.

The function **"Fill Color"** is also enabled when you **select** a **material** with the **"Material picker"** in order to assign it to another object. Please read more in the chapter "Material Picker".

Dye selections

With the function **"Dye Selection"** you can **assign the same color to groups of objects**. This function is particularly useful when you draw floor-space plans since you do not have to dye each object individually.

To dye selections, follow the steps below:

1. Select an **arbitrary number of objects** in your drawing.

2. **Click "Dye Selection"** (Materials group on the <u>Edit tab</u>) and **click** one of the provided **colors** or define a color.

3. The selected color will now be assigned to the selection of objects.

Preallocate colors to objects

Some objects can be **preallocated a color.** That means that you can **assign a color** to certain objects **before you draw** them. This saves you time because you do not need to dye them afterwards. This is possible for the following objects:

- Rectangle
- Polygon
- Line
- Circle
- Arc
- Ellipse
- Cone
- Sphere

To **preallocate a color** to an object **click the arrow** that is surrounded by a black circle on Figure 1 (Drawing Elements group on the Insert tab). Then **click** one of the provided **colors or define a color.**

Figure 1

3.3.2.5   Assign and edit textures

Contents

1. Assign textures
    1. Pictures
    2. Materials catalog and MATZ data
    3. Material Picker
2. Edit textures
    1. Textures for areas
    2. Reset projection
    3. Modify texture detail
    4. Adjust textures to 3D objects
3. Mapping options
    1. Planar mapping
    2. Cylinder mapping

Assign textures

In addition to colors you can **assign textures (materials) to** the **objects.** Suitable are **picture formats,** such as **PNG, JPG, BMP but also the MATZ data** as it is available in pCon. catalog. The latter are a **texture format** which was developed to "cover" the surface of objects.

Pictures

You can assign pictures to objects **by drag & drop**. Just **select a picture** and **drag it onto the surface** of an object. You can use **pictures** that you find **on websites as well as pictures from** a **local directory** (folder).

Figure 1 illustrates the process of drag & drop using a locally saved picture.
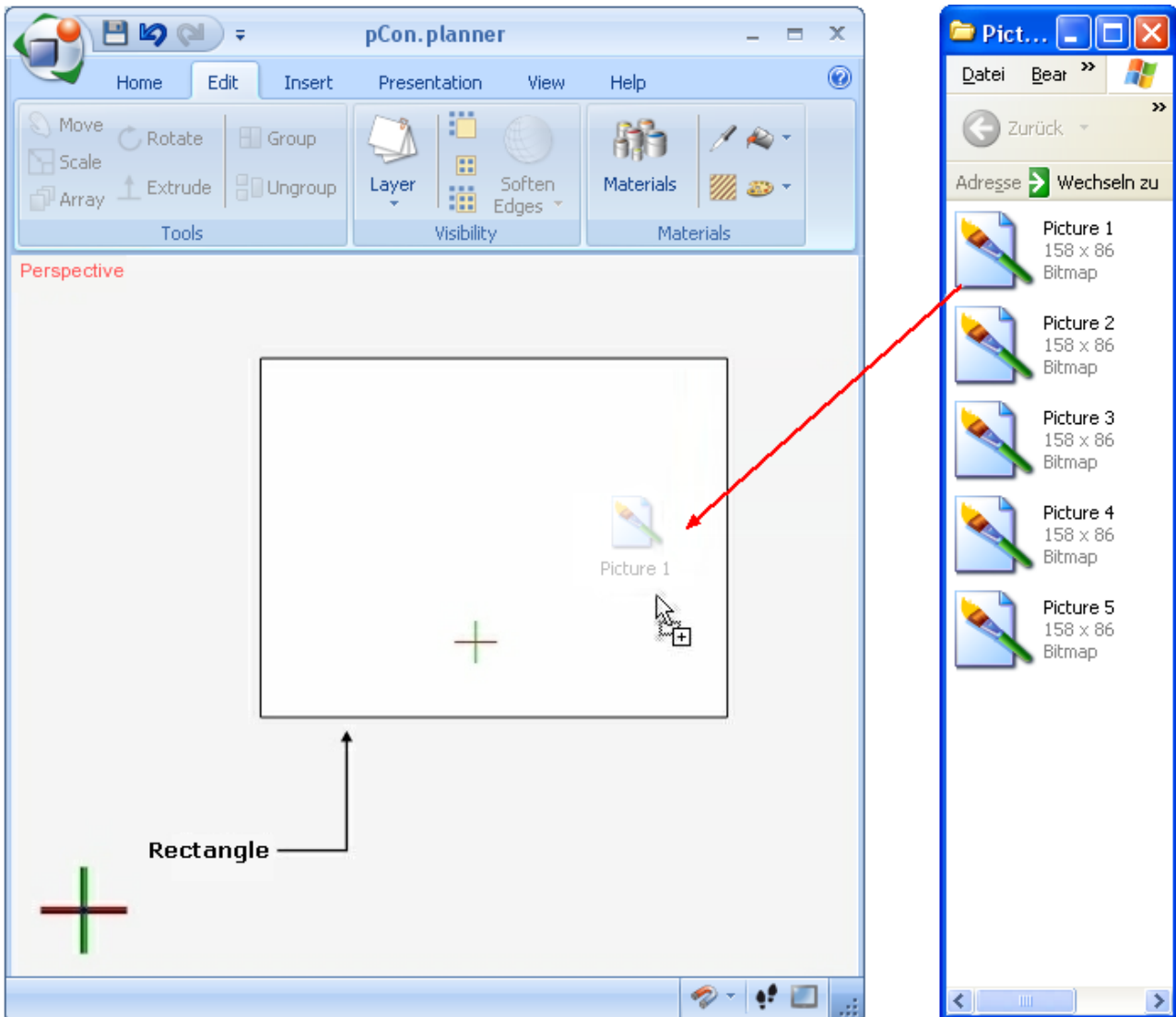
Figure 1

Materials catalog and MATZ data

pCon.plannter 6 gives you access to an online catalog with **MATZ surface textures**. Click the **pCon.catalog button** in the Object group on the Insert tab or the "Materials" button in the Materials group **to open this catalog.**

When pCon.catalog is open, **click "More Catalogs"** on the right side of the home page and go to the catalog **"World of Materials"** which provides numerous materials such as **woods,**

fabrics, carpets, stone materials or metals from which you can make your choice.

Click your desired **material** to **download** it right into pCon.planner. The **cursor** is now a bucket icon to indicate the tool being active. You can now **assign** the chosen **material to** as many **objects** as you like by clicking the relevant surfaces. The mouse pointer

Figure 2 illustrates the selection of wooden floor coverings that can be assigned to the rectangle by mouse click.
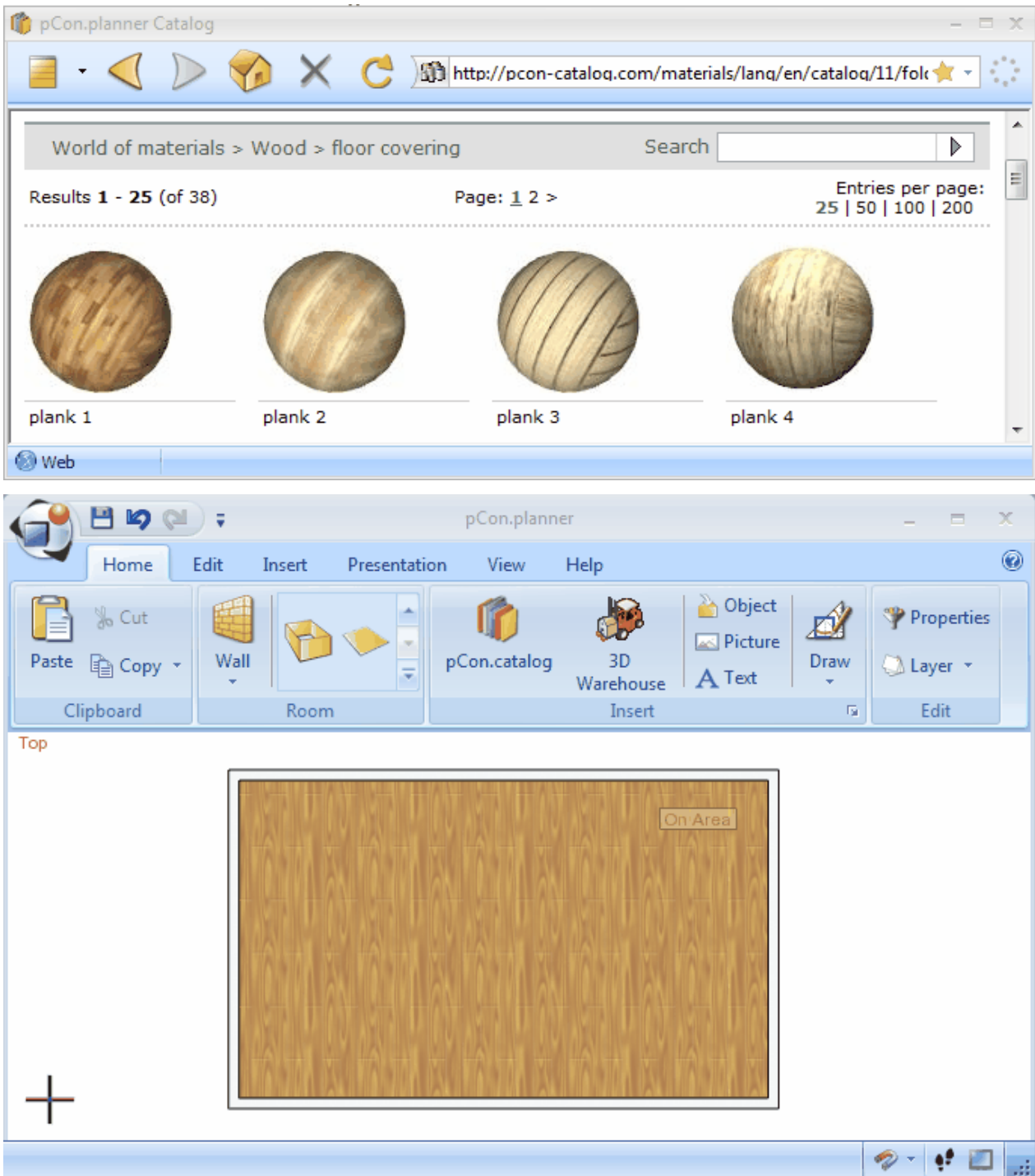
Figure 2

Material Picker

The Material Picker allows you to **pick** any **texture** in your planning and **drop it on another object**. You find the Material Picker on the Edit tab in the **Materials group**. To enable this tool just click the icon.
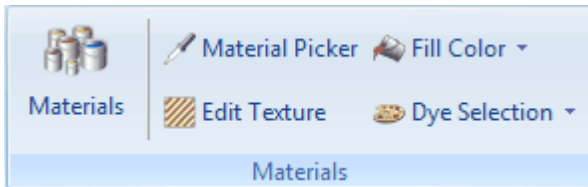
Figure 3

Figure 4 shows two chairs with different materials. Select the Material Picker, click anywhere on the left chair and move the curser to the right chair. The curser is now a bucket. You can now assign the color to the right chair or any other object / part of an object by mouse click. Repeat this step as often as required.

Figure 4

Often objects consist of several parts. To dye the whole objects you need to drop the material on each part individually.

When you want to **chose another texture,** just **click** the **Material picker** icon again. To quit the dying operation click the right mouse button / press Esc. / select "Cancel" in the Context Menu.

Figure 5

Edit textures

Now that you have found a **suitable texture** - a picture or MATZ file - for an object, you can **adjust it to the shape of the object**. For this purpose pCon.planner provides the function **"Edit Texture"**, which you can find in the **Materials group on the** Edit tab. With this function you can easily **edit textures of 2D and 3D objects**.

Textures for areas

A **texture** that refers to an **area of an object** can be **adjusted in terms of its size, position, rotation and inclination.**

Figure 3 shows a floor that was covered with a flagstone texture. To edit this or any other

texture just follow these steps:

1. **Click "Edit Texture"** (Edit tab, Materials group). You can see that the cursor changes its shape.

2. **Click any point of the texture**. The **Pins** that you need to adjust the texture (see figure 3) **are displayed**. **Click** the **relevant pin, keep** the left mouse button **pressed** and **move** the pin. (As soon as you move the pin you can let go of the left mouse button)
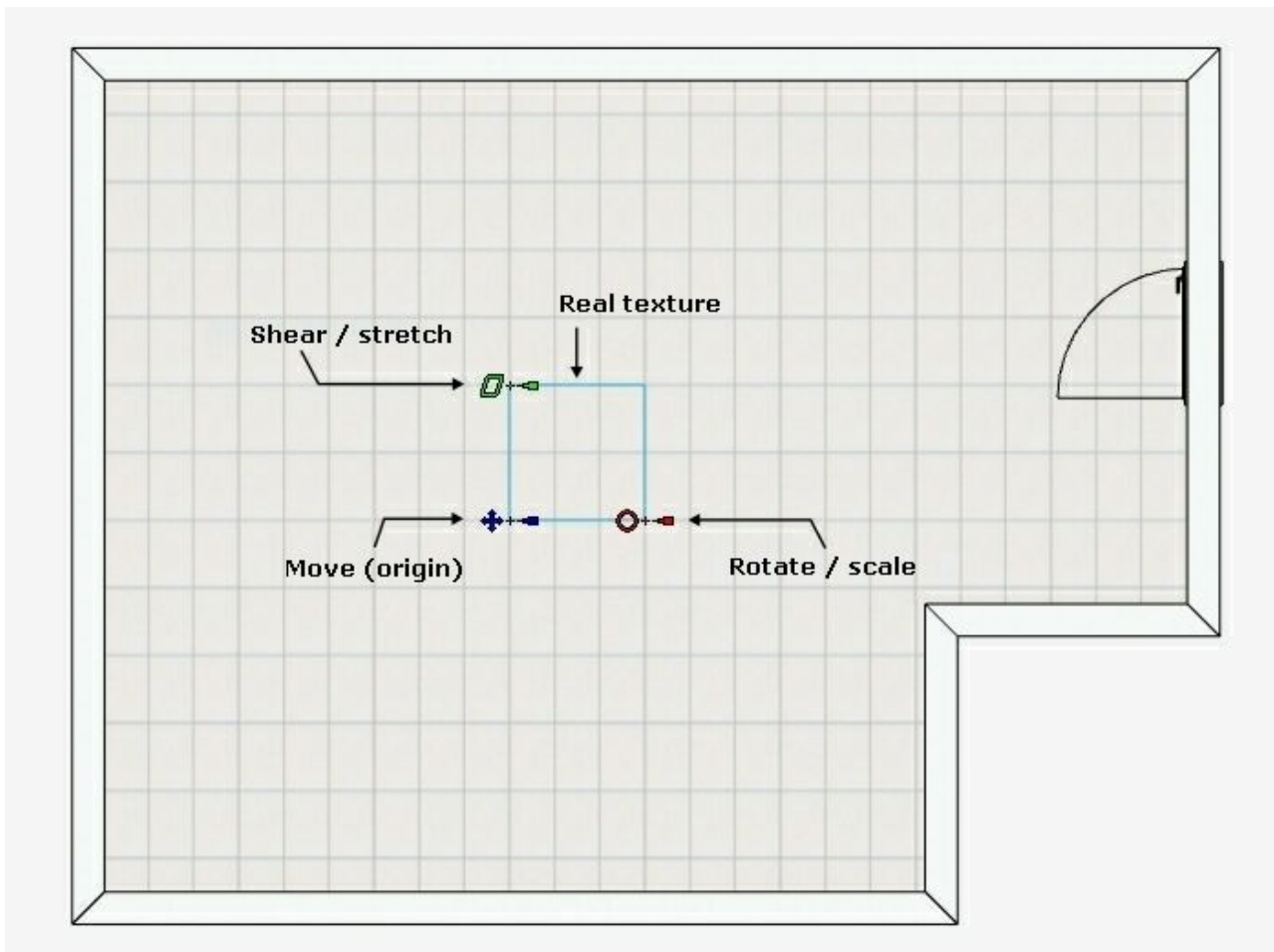
3. Another **click refixes** the pin.

Figure 6

Figure 3 illustrates the **three different kinds of pins.** With the Context Menu **entry "Unique Pin Action"** you can **turn all pins into the shear / stretch pin.** Then all three pins switch their shape to the green quadrangle and can now be used to adjust the texture on basis of the position of each pin.

Check out which of the two methods is more convenient for your work.
Figure 7 shows one possibility to assign a tiles texture to the room.
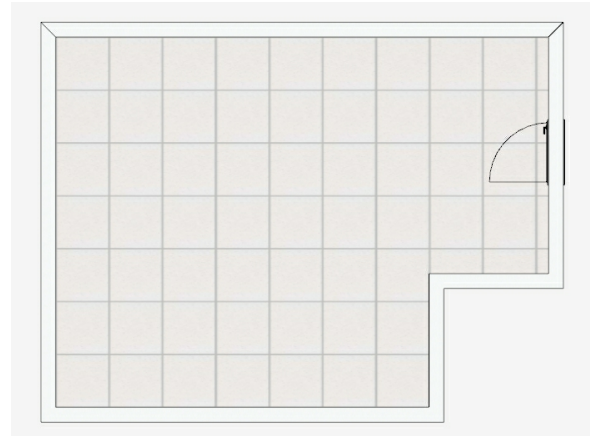
Figure 7

Reset Mapping

In Figure 3 you can see the **actual texture framed in light blue**. To **cover the complete floor** pCon.planner **automatically "maps"** it **as many times as necessary.**

This **"repetition"** can be **suspended** with the entry **"Reset Mapping" in the** Context Menu. The actual **texture** is then **adjusted to** the **shape of** the **object**.

Figure 8 illustrates the effect of the Context Menu entry "Reset Mapping" on the given example from figure 3.
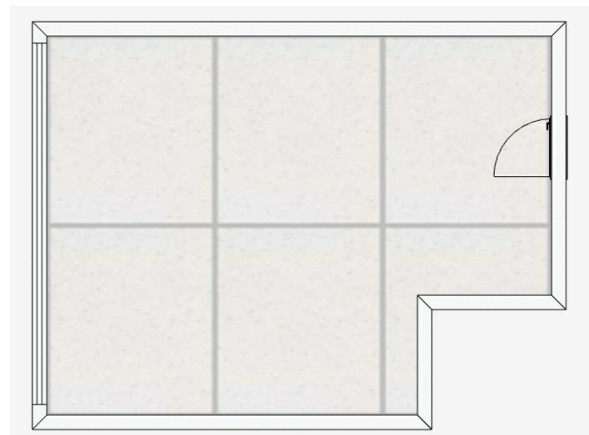
Whether the entry "Reset Mapping" is useful or not **depends on the shape of the object**. Particularly when the automatic texture mapping does not have the ideal result, this option is very useful. After resetting the mapping you can modify the size, position, rotation, inclination of the texture as described in this chapter.

Figure 8

Modifying the texture

As you have already learned in this chapter, the **three pins in figure 6** are used to **modify the size, position, degree of rotation and the inclination of a texture.**

Furthermore, these **pins can be moved** to select a certain part of the texture and to adjust it to the size of the object.

Figure 9 shows a wall paper that was assigned to a rectangle by drag & drop.

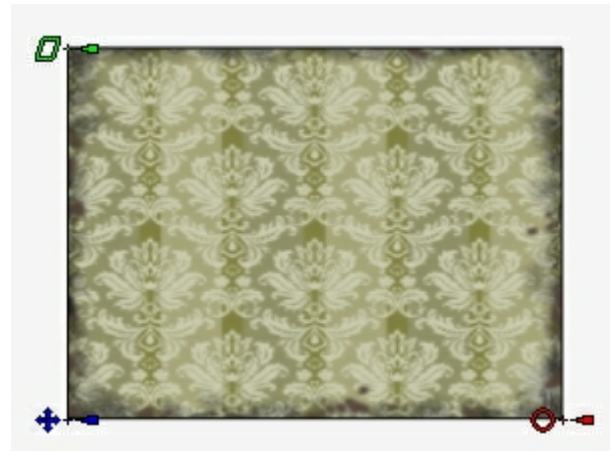We will now adjust the texture in such a way that the "dirty" edge disappears.

Figure 9

To **select a certain part** of a texture follow these steps:

1. **Start** the **Edit Texture Tool** (Edit tab) and **select** the **texture.**

2. **Click** the **relevant pins** and **let go of** the **mouse button.** The **pins** are now detached from their prior position and **can be moved**.

3. **Click again** to fix the new position of the pin.

In Figure 10 the blue (move) and the red (rotate/scale) pin were moved. The green (shear/stretch) pin remains at its position because it is not needed for this operation.

4. Now **click** the **red pin**, **keep** the mouse button **pressed** and **move to the right** to **scale** the texture. (Once you have started to move the pin you can let go of the left mouse button)

5. **Click again** to fix the current position of the texture.

6. **Now click the blue pin** (move), **keep** the mouse button **pressed** and **move** the pin.

7. **Click again to confirm** this modification.

Figure 11 shows the result of all modifications. There are no "dirty" edges anymore.

Figure 10

Figure 11

Adjust textures to 3D objects

Along with two-dimensional objects you can of course **use the pins** to **adjust textures to any three-dimensional object**.

The **procedure** is quite **similar**. The difference is that the **pins are always displayed at**

the **easiest accessible side** of the object. This **depends on** the **perspective.**

The figures 12 and 13 illustrate the effect of a slight change of the perspective on the pins. Even a slight change in the perspective makes the pins switch to another side of the object.
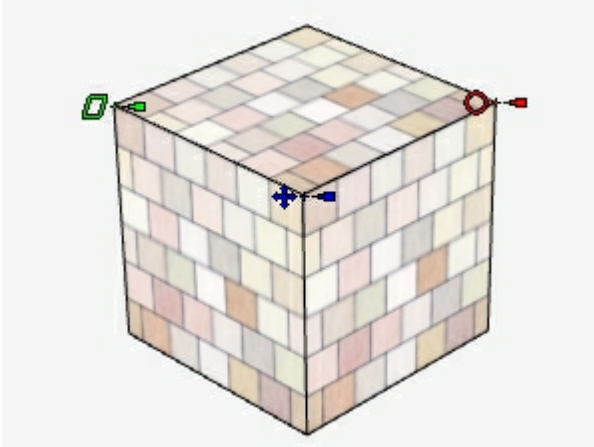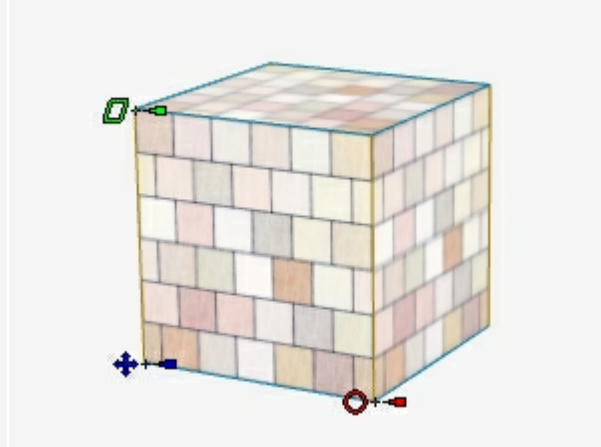

| **Figure 12** | **Figure 13** |

Modifications that you perform using the pins **effect all relevant sides** at the same time (not just the one that displays the pins).

Figure 11 demonstrates the effect of a non-proportional scaling on the different sides of the cube. The pins are positioned like in figure 14.
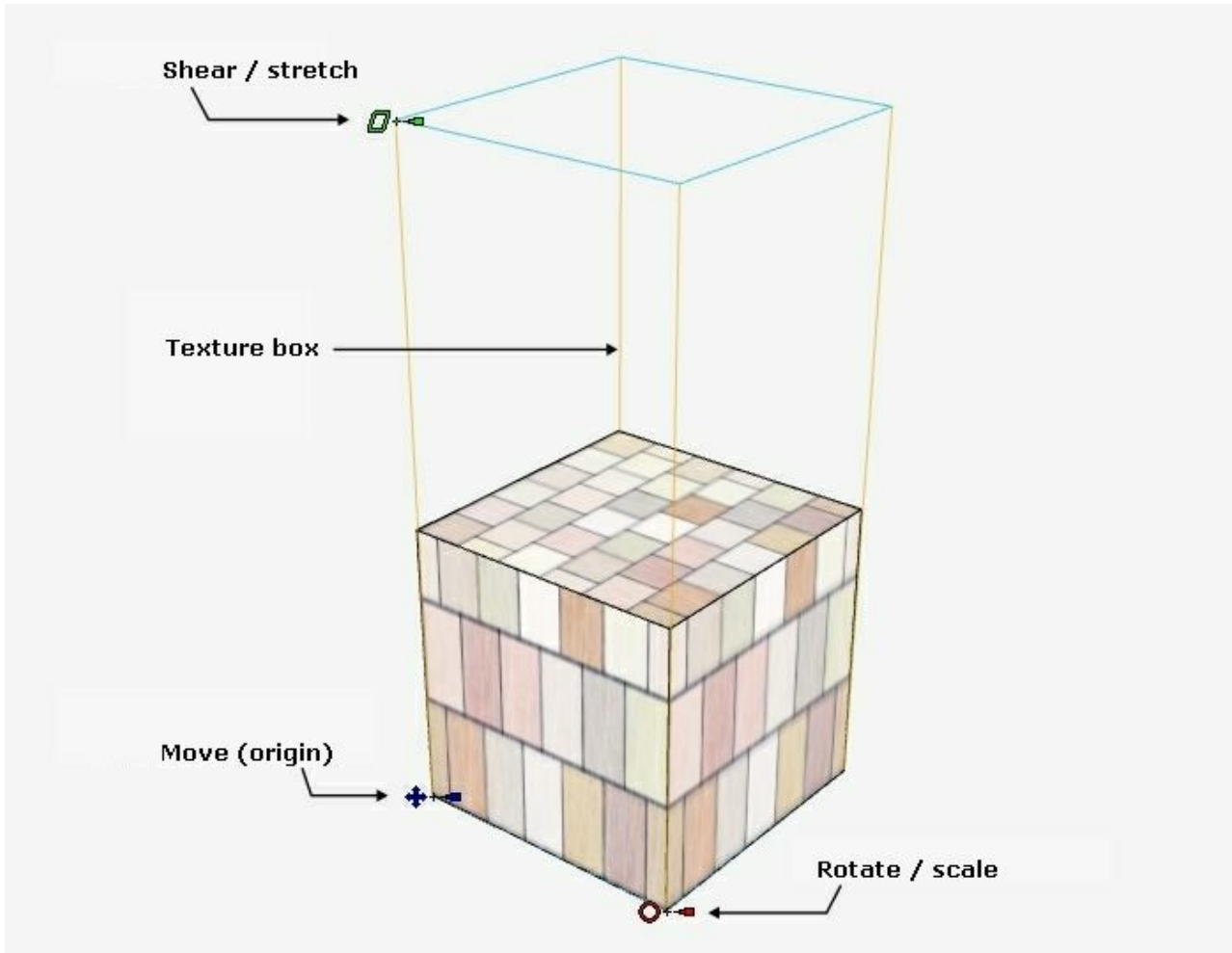
Figure 14

> **Note**
>
> The option **"Reset Mapping"** is also **applicable** (Context Menu) when you edit textures of **three-dimensional objects**.

Mapping options

The mapping method is responsible for the **way a texture is displayed on an object**. In all **standard cases** the user does not need to worry about the mapping method. It is an **automated process** in pCon.planner.

But there are some cases when **individual mapping can be useful**. The following passages deal with the options of individual mapping.

Planar Mapping

Planar texture mapping is the **easiest method**. The selected **texture** is **mapped onto** an **element from one direction**. Examples are given in figures 6 - 11.

Planar mapping is primarily **used for two-dimensional objects**. The entry "**Planar Mapping**" in the <u>Context Menu</u> allows you to **apply planar mapping also to three-dimensional elements.**

Figures 15 and 16 illustrate the characteristics of planar mapping from various directions.
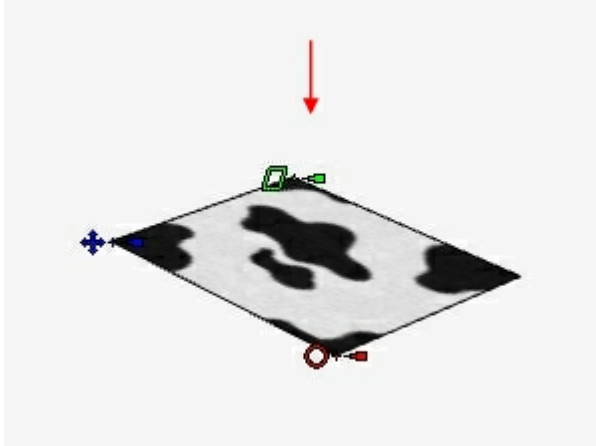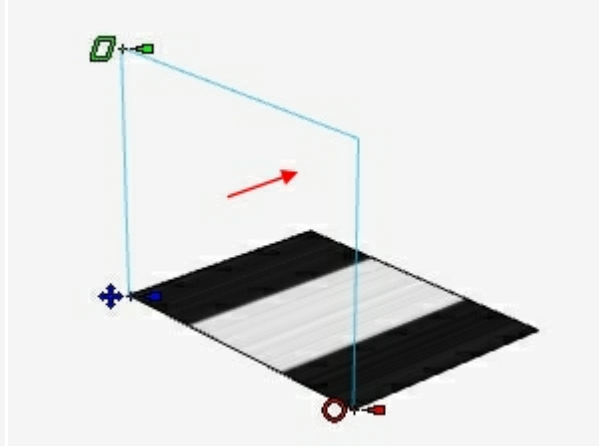
| Figure 15 | Figure 16 |

The **red arrows** in the pictures indicate the **mapping direction**. In the **left picture** you can see the **automatic mapping** as it is performed by pCon.planner. In the **right picture** the **projection plane** was **rotated by 90°** to the object. The rotation was performed with the green pin (shear / stretch)

Cylinder Mapping

The cylinder mapping is used to **adjust (calculate) textures to three-dimensional objects** (figures 9 - 11).

Here the **selected texture** is not **mapped** onto the object **from** one but from **different directions**. The figures 17 and 18 demonstrate this difference.
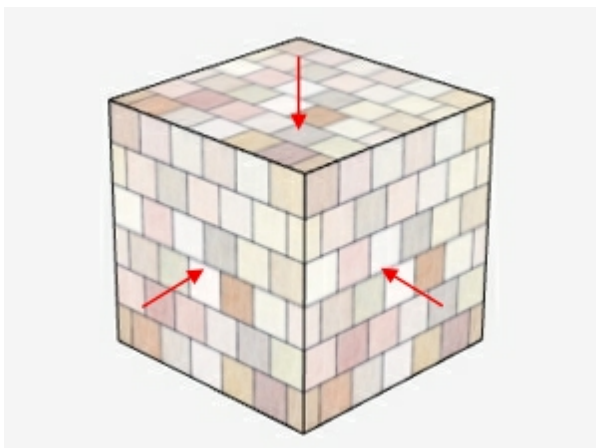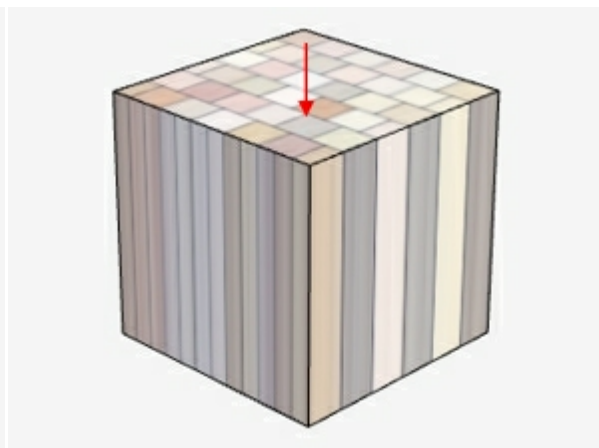
| Figure 17 | Figure 18 |

Figure 17 visualizes the **cylinder mapping,** whereas **figure 18 visualizes the planar mapping.**

In the <u>Context Menu</u> you find the **two entries "Planar Mapping" and "Cylinder Mapping"** which allow you to **switch** between both **mapping options** and to test their effect on the objects.

3.3.2.6 Edit properties

Click the **Properties button** in the Tools group on the <u>Home tab</u> to **open** the pCon.planner **Properties dialog box.**

This dialog box provides **information** on **many object properties** and also **allows modifying** these properties.

To modify object properties first **select an element** or a group of elements. Then open **open the Properties dialog box.**

Figure 1 displays the properties of a <u>point light</u>. In the dialog you can, for example, edit the position of the element, the color and the range of the light.

Properties		
Layer	72_EGR_ROOM5_LIGHT	
» X-Position	7,3092m	
Y-Position	4,6568m	
Z-Position	0,0000m	
Color	255 255 255	»
Intensity	1,00	
Range	30,0000m	
Light Source	On	☑

Figure 1

3.4   Navigation in the planning

The **navigation** in pCon.panner includes **four components**, which – in combination – allow you to look at your planning from every perspective.

You can **zoom in and out** on your planning, or you can **pan the view into all directions**. The orbit mode allows to **rotate around one set point** and WASD navigation allows **movements parallel to the planning level**.

Contents

3.4.1   Zoom operations

You can **zoom in and out** on your planning by using the **scroll wheel** of your mouse, with particular **menu items** as well as with **keyboard shortcuts.**

Scroll-wheel

Turn the **scroll wheel to zoom in and out** on the planning. Turn the wheel "away" from you to zoom in and "toward" you to zoom out.

Note that the zoom **zooms to** the **current position** of the **mouse pointer**. This allows you to **focus on specific objects**.

> **Note**
>
> If your mouse does not have a scroll wheel you can use the Zoom operations in the Camera group on the View tab or the respective keyboard shortcuts to zoom in and out on your planning.

Zoom menu items

The zoom menu items are located in the **Camera group on the** View tab. These Zoom tools not only allow to zoom in and out, but also to match the size of the planning to the current size of the work area.

To open the menu click the arrow below the zoom button.

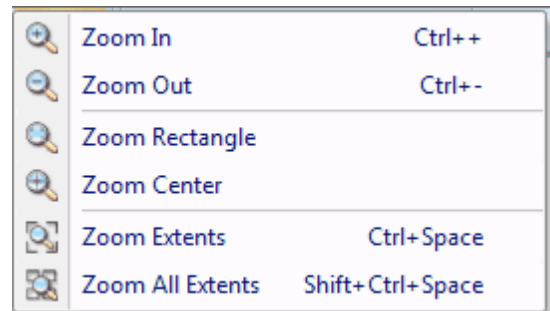Altogether the zoom menu contains six items (Figure 1), which will be introduced as follows.

Figure 1

- Click **Zoom In** to zoom in on the planning in **the active** viewport.

- Click **Zoom Out** to zoom out on the planning in the **active viewport**.

- Click **Zoom Rectangle** if you want to zoom to a **specific area of your planning**. In the relevant viewport click and drag the rectangle around this area. The selected area will be zoomed in.

- **Zoom Center** works similarly to the Zoom Rectangle tool, only that rather than a rectangle, this tool opens a square around the starting point.

- **Zoom Extents** shows the **full extent of the active viewport**.

- Similar to Zoom Extents, **Zoom All Extents** shows the **full extent of all viewports simultaneously.**

Note

1. Alternatively to the zoom menu items you can use the keyboard shortcuts as to be seen in **figure 1.** The "+" means that you have to press the keys simultaneously.

2. **Zoom Rectangle** and **Zoom Center** are **not available** in the perspective camera view .

3.4.2 PAN mode

Figure 2

Panning allows you to **move your view** of the planning **two-dimensionally.** You can pan **sideways or up and down** while remaining at the same distance (see Figure 1).

Click and hold the **right mouse button** to activate the panning function and **move the mouse pointer vertically or horizontally**. The mouse pointer changes to a hand icon (encircled in Figure 1) which stands for the pan mode.

Figure 1 shows the directions of the panning navigation within an exemplary planning project.

3.4.3 Orbit mode

Figure 1

The orbit function **swivels three-dimensionally around one set point**, which can be positioned on any object or in empty space.

1. To use the orbit mode, first change into the perspective camera position. Move the cursor to the position around which you want to swivel.

2. **Click and hold the scroll wheel** of your mouse. In the active viewport, the mouse pointer changes to indicate the orbit mode (encircled in Figure 1).

3. **Move the mouse to swivel** around the fixed point. You are in the orbit mode for as long as you hold the scroll wheel.

If your **mouse** does **no**t have a **scroll wheel** nor a **middle** mouse **button**, follow these instructions:

1. **Click** the **point** around which you want to swivel.

2. Now **click** the **left** mouse **button while** keeping the **right** mouse **button pressed**.

3. **Move** the mouse **to swivel** around the current mouse position. You are in the **Orbit mode** for as long as you keep **both mouse buttons pressed**.

> **Note**
>
> The orbit function applies in the **same manner** if your mouse has a **middle button instead of scroll wheel.**

3.4.4   WASD navigation
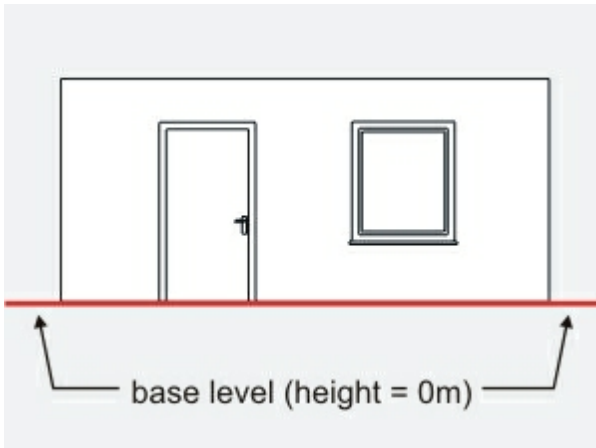
Figure 1

With the **arrows or** with the **"W", "A", "S", "D"** keys on your keyboard you can **move your planning forward, backward, right or left**. This way of navigation carries out movements **parallel** to the base level (see Figure 1).

Unlike the <u>orbit function</u>, you do not determine the starting point for the rotation. The **current camera position** – your point of view – is always the **point of reference for the WASD or arrow navigation**. This function provides the most realistic navigation.

3.4.5 Walkthrough Interaction Mode

pCon.planner provides a **fifth camera mode** - the Walkthrough Interaction Mode.

You can **switch** to this mode **via** the **Icon** in the Status Bar at the bottom of the program or via the **F9 key**.

The Walkthrough Interaction Mode is **only activated** for the **active view**. We **recommend** to use this mode in the Perspective camera view.

3.5 Camera settings and rendering modes

This chapter introduces the **different camera angles** and **rendering modes** of the pCon. planner. A good understanding of the different options greatly helps to efficiently apply the software. All corresponding commands are located in the **Camera group and Render group on the** View tab**.**

Contents

1. Camera angles
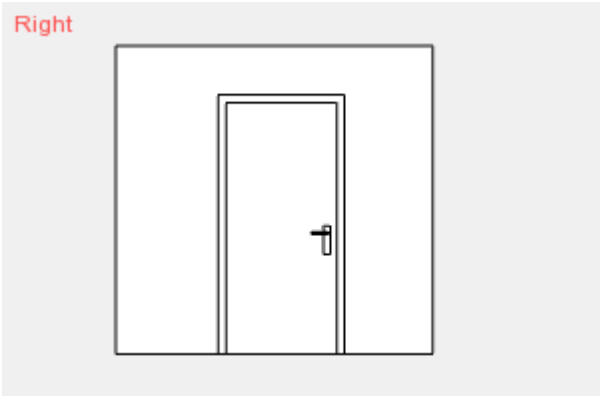   1. 2D camera positions
    2. Isometric camera positions
    3. Perspective camera position
    4. Individual camera views
    5. Assign camera positions
2. Rendering modes
    1. Wireframe
    2. Hidden Line
    3. Colored
    4. Shaded
    5. Conceptual
    6. Realistic
    7. Extended rendering options
3. Adjust Rendering
    1. Show outlines
    2. Transparent walls

3.5.1 Camera angles
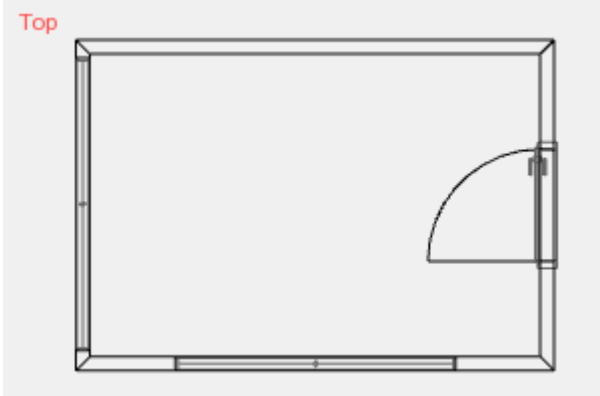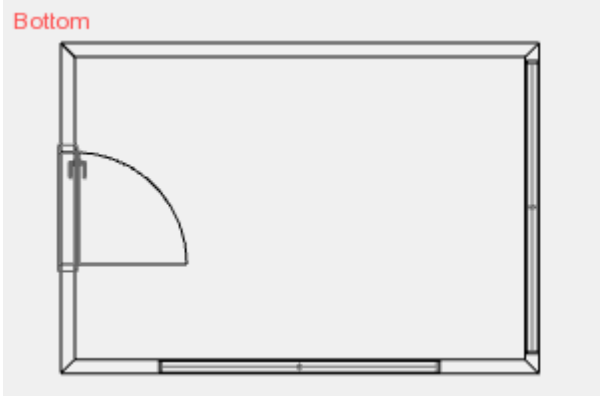
The different available options for camera positions are located in the **Camera group on the** View tab. You can assign the way you look at your planning to match your needs at every step of your planning progress. The **currently active setting** for each viewport is **highlighted on the** Ribbon as shown in Figure 1.

This chapter introduces the different camera angles and provides you with some useful hints on how to use them effectively. Furthermore you will learn how to assign individual settings to each viewport.
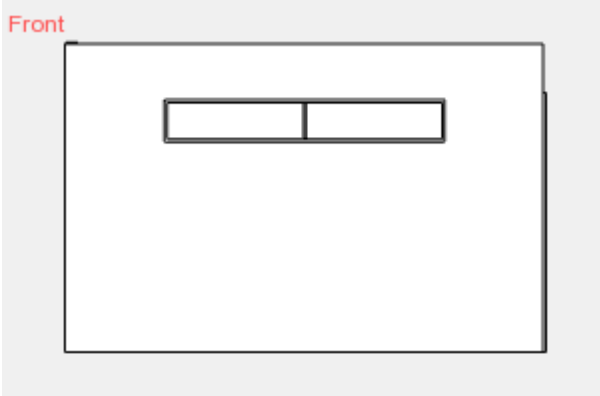
3.5.1.1   2D camera positions

The **following tables** with the **pCon.planner icons** in the left column and corresponding examples in the right column help you understand the specific settings.

The **names** of all camera positions except the perspective view **derive from** their **spatial relation to the top view**.

2D view	Example

The use of the Top and Bottom camera positions is mainly **suitable** for the **drawing of walls** as well as for the **insertion of room and furnishing items**. They provide a **good overview** of the planning's layout and the distribution of items. You can also easily specify width and depth. The **Bottom view** is a **rotation of the top view by 180°** about the y-axis.

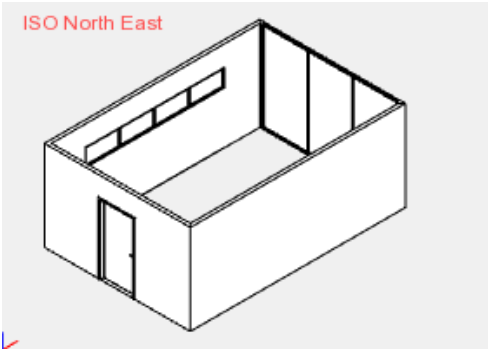| 2D view	Example

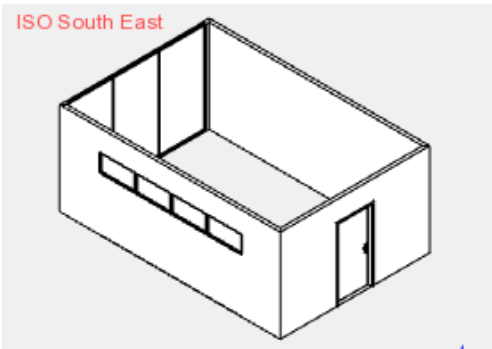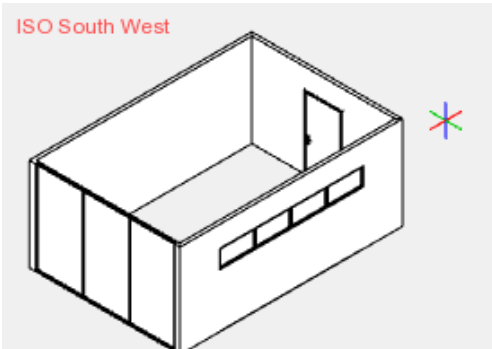| 2D view	Example
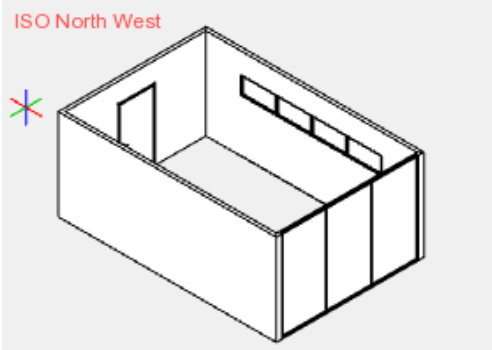
Left, Right, Front and Behind views are **useful** for **working** on the **objects located along the relevant sides of the rooms**, where you can easily **change size and location** of room and furnishing items. Particularly height and distance measurements are easily carried out in these perspectives.

3.5.1.2 Isometric camera positions

The **following tables** with the **pCon.planner icons** in the left column and corresponding examples in the right column help you understand the specific settings.

The **names** of all camera positions except the <u>perspective view</u> **derive from** their **spatial relation to the top view**.
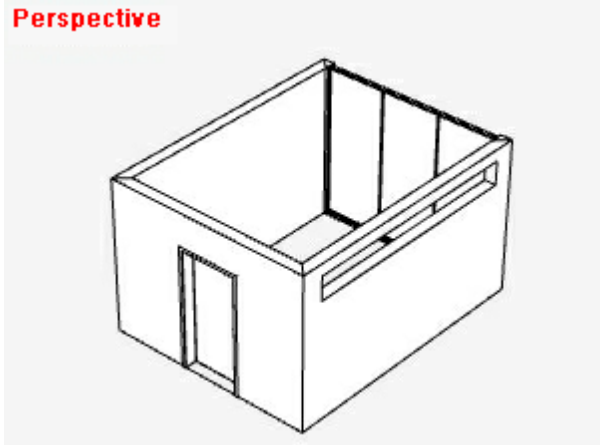
Isometric view	Example

Isometric view	Example
	ISO North West
	ISO South East
	ISO South West

The isometric views **visualize** the planning **three-dimensionally disregarding natural distortion**. These views therefore appear clearly arranged and allow to easily edit room and furnishing items.

3.5.1.3   Perspective camera position

The Perspective setting **displays** the observed **objects in a realistic manner**. This is accomplished by **including natural distortion**. This provides you with a **realistic impression of your planning**.

Perspective view	Example
	 Figure 1

3.5.1.4 Individual camera views

Along with the <u>standard camera positions</u> you can easily **set up customized views** and **use them** in the further planning process.

Here you will learn how to set up and adjust individual camera views.

Contents

1. <u>Set up individual camera views</u>
   1. <u>Option 1</u>
   2. <u>Option 2</u>
2. <u>Display / hide camera symbols</u>
3. <u>Adjust individual camera views</u>

Set up individual camera views

There are two options how to set up customized camera views (cameras):

Option 1

- **Click** the **button** for the <u>perspective view</u> (Camera group on the <u>View tab</u>) to switch the active <u>viewport</u> to the perspective view.
- <u>Navigate</u> the planning to the **desired view**.
- Click the **down arrow on** the **Camera button** (Camera group on the <u>View tab</u>) and **select „Camera from view"**. An individual camera view of the current perspective is created.
- The **blue circle** that will immediately show up on your planning indicates the **center of the new camera view – the camera focus** (see figure 3).
- If you now want to **change the camera focus**, just **click** the **circle** and **move** it.

In the **paragraph** „Assign camera positions" you will learn how to **display the individual camera views** in the active viewport.

Option 2

- **Click** the **button** for the perspective view in the Camera group on the View tab, to switch the active viewport to the perspective view.

- **Click** the **Camera button** (Camera group on the View tab).

- The cursor now changes its shape to a camera icon.

- **Click** the viewport to **define the position of the camera**. Alternatively you can enter exact measurements and confirm by Enter.

- Now **define** the **direction of the camera** and the **angle of the shot**. To do this move the mouse over the viewport and **click the desired position.** Alternatively you can enter exact measurements and confirm each entry by Enter.
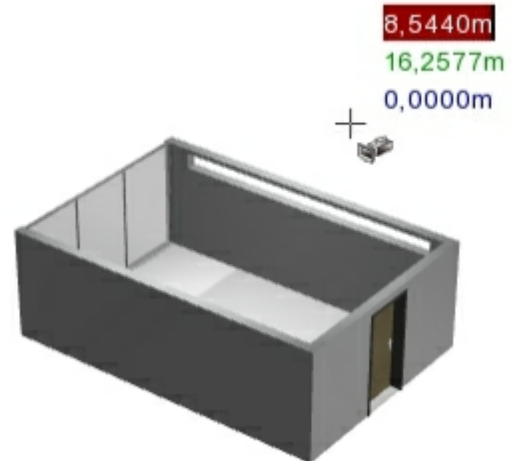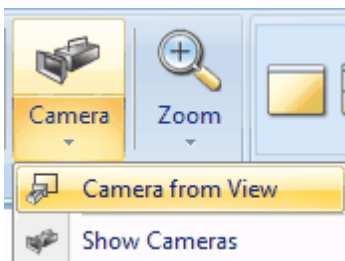
Figure 1

Display / hide camera symbols

You can **display or hide** the **symbols** for your customized camera positions while working with you planning. Displaying the symbols is necessary if you want to make changes to one or several of your individual views.

To display or hide the camera symbols click the **down arrow on the Camera button** (Camera group on the View tab) and **select "Show cameras"** (figure 2).

Figure 2

The **setting** is **active** when it is **highlighted**. To deactivate it just click again.

Another possibility to display the camera symbols is via the layers and the layer control.

Adjust individual camera views

Your individual cameras can be adjusted with regard to their **position and displayed detail**. To perform adjustments first **click one of** the **camera symbols**. A four-sided pyramid with its vertical center line is displayed.

Figure 3 shows the origin of the camera, the camera focus and the displayed detail - marked with red lines.
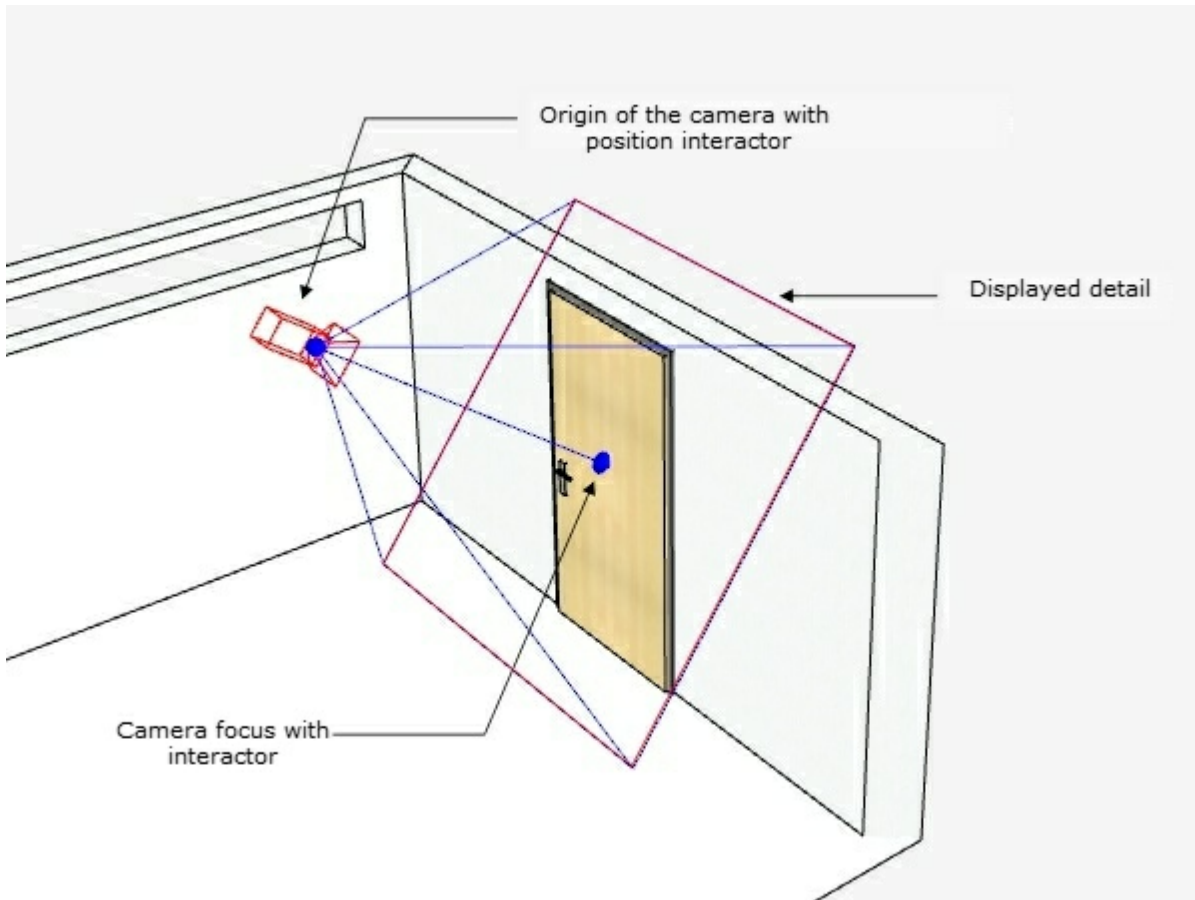
Figure 3

Rotate around origin and focus

To **rotate individual cameras around** the **camera focus** just click the **position interactor** and pan it (figure 4).

Another mouse click confirms the new **camera position**.

This change is particularly **convenient** when you want to **look at** an **object from several perspectives**.

Figure 4 illustrates (highlighted in light green) the **positioning interactor**, all **possible directions** as well as - marked by a red circle - the **fixed camera focus**.
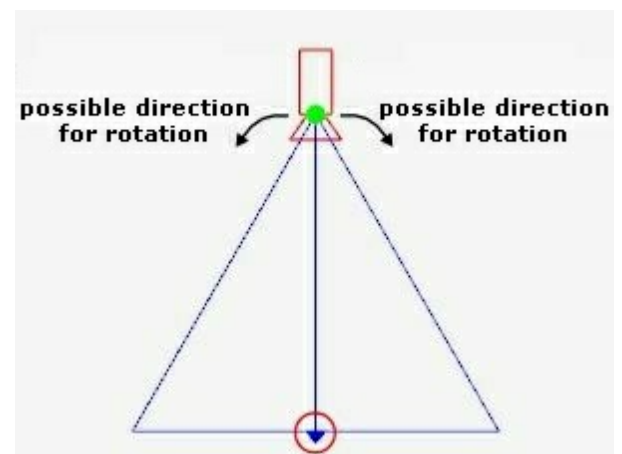
Along with rotating the camera around the camera focus you can also **use the interactor** (see red

Figure 4

circle in figure 4) to **rotate the camera itself**.

Shift camera to another position

Along with rotating the camera around the camera focus and rotating the camera itself you can also **shift the camera and its focus to another position**.

To do this **click** the **camera symbol**. The **lines** as described in passage "Adjust_ customized_ camera positions" **are displayed** (figure 5).

Click one of the **line**s and **move the mouse** to shift the position of the camera and the camera focus.

Another click fixes the **new position**. Figure 5 illustrates the vertical and horizontal movement of the camera.
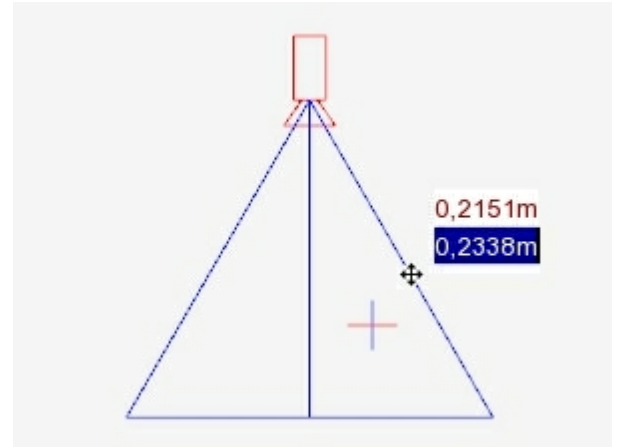
Figure 5

Zoom in and out on display detail

The **display detail** focussed by a camera can be **changed** by **positioning the camera closer or further away** from the object.

Additionally, you can influence the size of the display detail by **moving the position interactor**.

To move the position interactor follow these steps:

1. **Click** the **position interactor**.

2. **Move** the interactor **along** the **line of the camera focus.** The **closer** you get to the focussed object the **smaller** the **display detail.** When you move away from the focussed object the display detail will get wider.

3. A final **mouse click fixes** the **size** of the focussed area.

3.5.1.5   Assign camera positions

There are **2 options** to **assign specific camera positions** to a <u>viewport</u>.
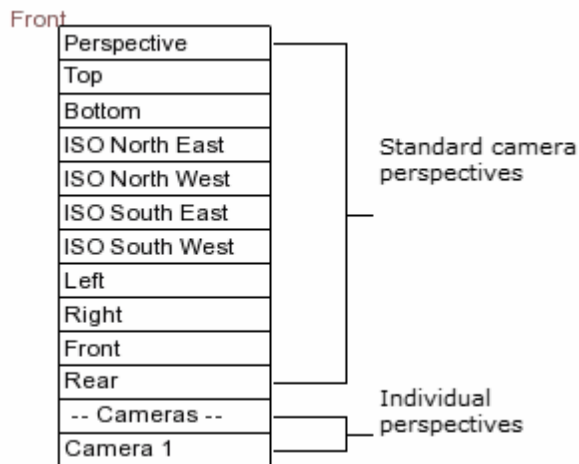
Option 1

Figure 1

In the upper left corner of each <u>viewport</u> the name of the <u>camera perspective</u> is displayed. In the active viewport this name is highlighted in red.

To assign the active viewport another camera position just **click the highlighted word** in the upper left corner and **select the relevant entry**. (Figure 1)

The menu displays the **standard camera perspectives** first. Below you find the <u>individual perspectives</u>**.**
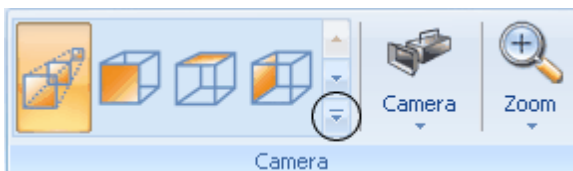
Option 2

Figure 2

Click anywhere in the <u>viewport</u> to which you want to assign a new camera perspective.

Click the **arrow** (figure 2, Camera group, <u>View tab</u>) to see **all possible camera positions**. The standard and individual views will be displayed. **Select** the **appropriate view** by mouse click. The planning is then displayed in the chosen view.

There you will find your <u>customized camera perspectives</u> listed below the **standard positions**. Click the desired position to assign it to the active viewport.
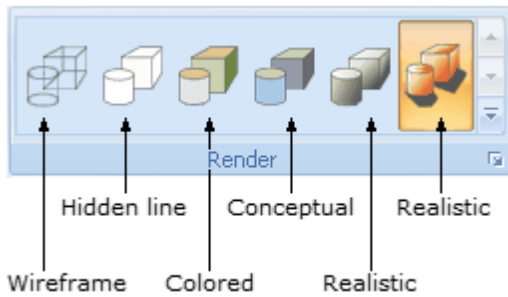
3.5.2 Rendering modes

Figure 1

In pCon.planner you can have your **planning displayed in different rendering modes**. You can choose the appropriate setting in the **Render group** on the View tab, which **assigns** the desired **mode to the active** viewport.

The **active rendering mode** of the viewport is **highlighted in color** as can be seen in Figure 1.

Click the links below to learn more about the characteristics of each rendering mode.

Contents

3.5.2.1 Wireframe mode

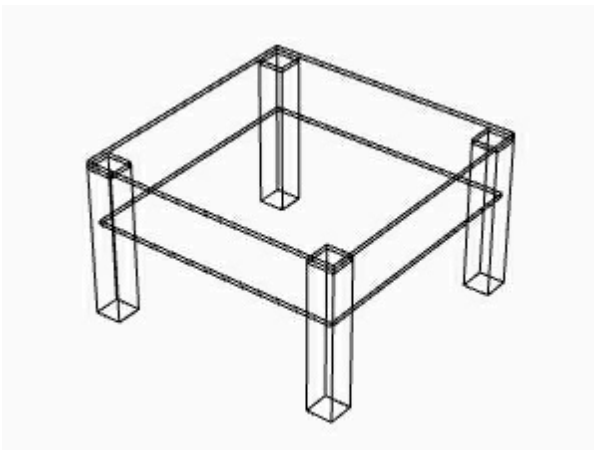**Figure 1**

This mode displays **all objects** of your planning as **wireframe models**. This means that **only** the **construction lines** of the elements are **displayed**. The amount of construction lines is different depending on the object.

One typical application of the wireframe mode is when 3D plannings are created by accurately tracing 2D data.

Figure 1 shows a stool in wireframe mode.
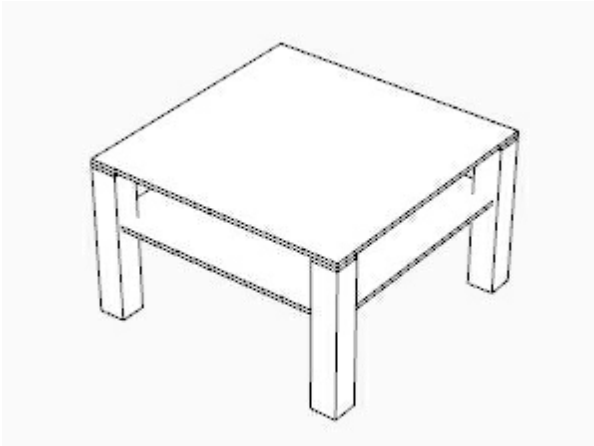
3.5.2.2 Hidden line mode

Figure 1

Similar to wireframe, the construction **lines remain visible** in the Hidden Line mode. However the **surfaces between the edges** are **filled in white**, concealing any lines behind the object. Only those **lines facing** the **observer** are **displayed.** Plannings in the Hidden Line mode therefore **appear less complex** than in the Wireframe mode.

Figure 1 shows a stool in the Hidden Line mode.

3.5.2.3 Colored mode

Figure 1

Additionally to the construction lines (as known from the Wireframe and the Hidden Line modes) the Colored mode **shows colors and** textures **on the objects**. But in order to keep the required system resources low there are **no visual effects** that would require intensive computer calculations, **such as light and shades.**

This mode was designed **for two-dimensional floor space plans**.

Figure 1 displays a stool in the Colored mode.

![pCon.planner 6 logo]

3.5.2.4 Conceptual mode

Figure 1

The Conceptual mode **improves** the **three-dimensional perception** of the objects by systematic **application of cold and warm colors** as well as the **use of reflections**.

With computers that support **OpenGL 2.**1 this mode usually provides the **fastest processing speed** and is suitable for every planning phase.

Figure 1 shows a stool in the Concept mode.

3.5.2.5 Shaded mode

Figure 1

In contrast to the Wireframe and Hidden Line modes, the lights that you placed in the planning **are displayed and effective**. The planning therefore appears more natural than in the modes mentioned above.

The illumination model that is used in this mode is very simple. The objects themselves are illuminated which promotes their spatiality. But **complex calculations**, **such as** the visualization of **shades**, are **not included** to ensure a **high performance and speed** of this render mode.

Figure 1 shows a stool in Shaded mode.

3.5.2.6 Realistic mode

Figure 1

The **highest rendering quality** for textures and colors of room elements is provided by the **Realistic mode.** The **shades** of the objects in your planning are **displayed** and create the optimum of real-life appearance. The Realistic mode is **primarily suitable for presentation** and **assessment of the planning** in the end of the design process. For the **planning itself** we recommend **other modes**.

Figure 1 shows a stool in Realistic mode. More examples for realistic displays can be accessed in our Gallery.

3.5.2.7 Extended rendering options

Click the **icon encircled** in **Figure** 1 to access the **extended rendering options**. A dialog box opens, which offers a number of configuration options on three tabs: **Presentation, Quality and Miscellaneous** (Misc).

Figure 1

Presentation tab

Colors

- "ISO/2D Background": Set a **background color** for all two-dimensional views.
- "Show sky environment in perspective viewports": A **sky** is displayed in the perspective camera view in all rendering modes.
- "Perspective background": Set a **background color** for the perspective camera view.

Options

- "Point size": A point is very difficult to find in bigger drawings. To make this easier you can **adjust the point size in pixels** (1 px - 50 px).
- "Use quick rendering": Activate this option if you want pCon.planner to **switch automatically to** a **faster** rendering modes. Especially with **slow graphics cards** this has a very **positive** effect on the **visualization speed** of your drawing.
  You can **configure** the switching via the **Options button**: If you require an **earlier or later switching** / **returning to original rendering mode**, just **change** the **delay time** (in ms). Depending on your graphics card the option "Use wireframe as lowest reduction level" can also speed up the navigation. Check this out!

Quality tab

Settings

- "Texture quality": With this option you can **select** a visualization **quality** of **textures** from **"simple" to "Extra high"**. Please note that the texture quality may have an **influence on the performance**.
- "Shadow quality": With this option you can **select** the **quality** of the **shadows** from **"Normal" to "High".** Please note that the texture quality may have an **influence on the performance**.
- "Use anti-aliasing": With this option you can **activate / deactivate** the anti-aliasing of the objects. Objects appear **more harmonic** and **smoother** with the anti-aliasing activated.
- "Use global edge softening": With this option you can **enable / disable** the global edge softening. Edge softening **reduces** the **number of displayed lines** between the object surfaces. Please find detailed information in the chapter "Edge softening".

Miscellaneous tab

- "Synchronize center of orthographic views": Determine whether the **center of** the **two-dimensional views** are to be **synchronized**. When this option is activated, <u>navigation</u> in the active <u>viewport</u> results in simultaneous navigation in all <u>viewports</u>.

- "Synchronize zoom of orthographic views": This option **synchronizes the zoom in all two-dimensional views**. The zoom operations are carried out in all 2D-<u>viewports</u> simultaneously.

Note

The options for Synchronizing zoom or center **directly affect** the **capacity of your graphics card**. If you notice a loss in the processing speed in the rendering processes disable one or both of these options.

3.5.3 Adjust rendering

There are **two ways** to adjust the rendering of your drawing to your requirements. On the one hand you can have the **outlines** of your drawing **displayed** in the <u>rendering modes</u> " <u>Conceptual</u>", "<u>Shaded</u>" and "<u>Realistic</u>" via the function **"Show outlines"**. On the other hand you can have **walls** displayed **transparent** via the function "Transparent walls".
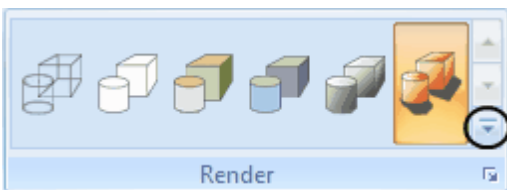

Figure 1

The two functions are found in the **menu** that you can access via the **small down arrow** in the Render group on the <u>View</u> tab (encircled on figure 1).

Figure 2 illustrates a planning in the <u>Realistic mode</u> without transparent walls and without displayed outlines. In figure 3, on the contrary, you can see a combination of both functions.
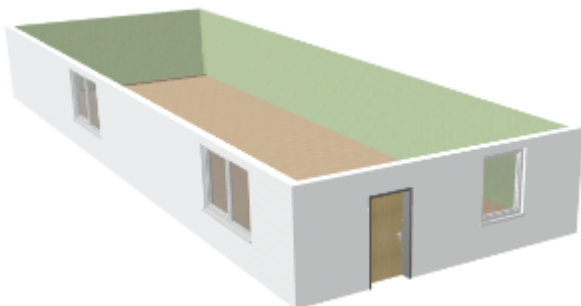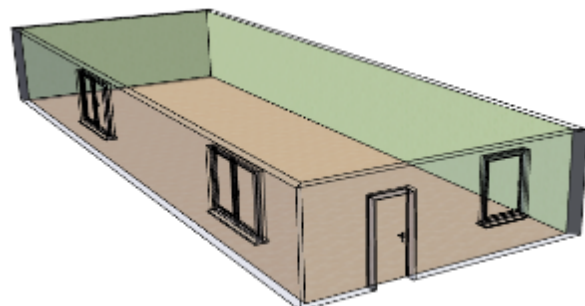

Figure 2

Figure 3

Contents

3.5.3.1   Show outlines

With the function "Show outlines" you can have the outlines of objects displayed also in the rendering modes "Conceptual", "Shaded" and "Realistic".
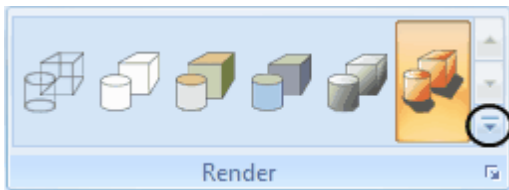

Figure 1

Navigate to the function by **click**ing the **small down arrow** next to the rendering icons (encircled on figure 1) in the Render group on the View tab.
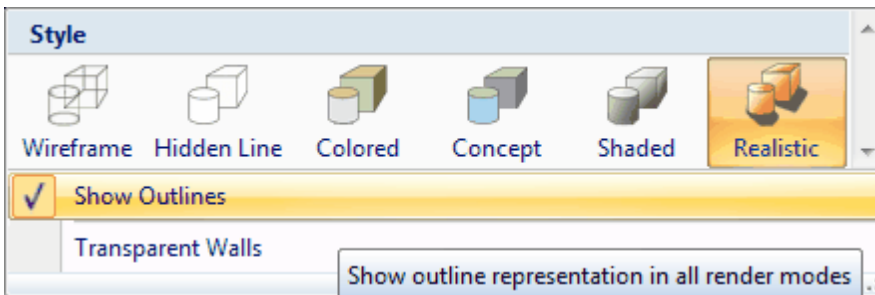

Figure 2

In the **menu** that is now open you can **enable/ disable** the function "Show outlines" by **mouse click**. The tick confirms that the function is enabled.

Figure 3 shows a planning in the Realistic mode without outlines. Figure 4 shows the same planning but with the outlines displayed.
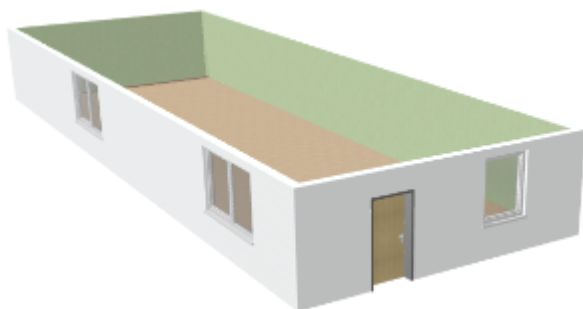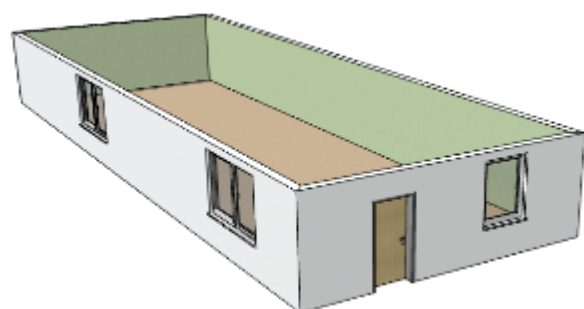

Figure 3

Figure 4

3.5.3.2   Transparent walls

With the function "Transparent Walls" you can have those walls displayed transparent that block your view inside a room or building. This will help you to keep a good overview of the current room situation and facilitate the planning process.
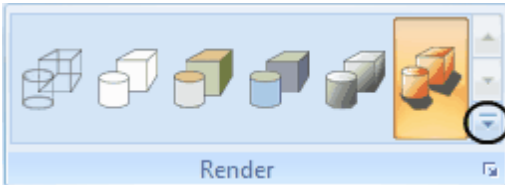

Figure 1

To get to the function "Transparent walls", **click** the **small down arrow** next to the rendering icons (encircled on figure 1) in the Render group on the <u>View</u> tab.
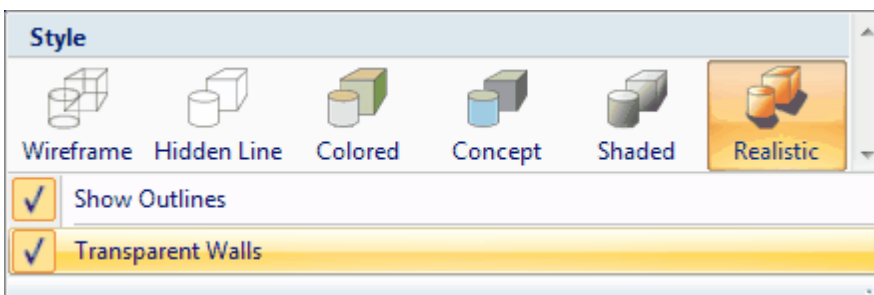

Figure 2

In the **menu** that is now open you can **enable/ disable** the function "Transparent walls" by **mouse click**. The tick confirms that the function is enabled.

Figure 3 shows a planning in the <u>Realistic</u> mode without outlines. Figure 4 shows the same planning but with transparent walls.
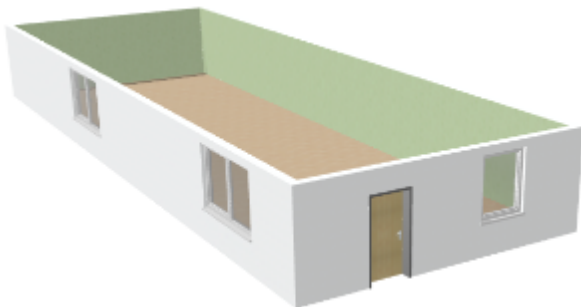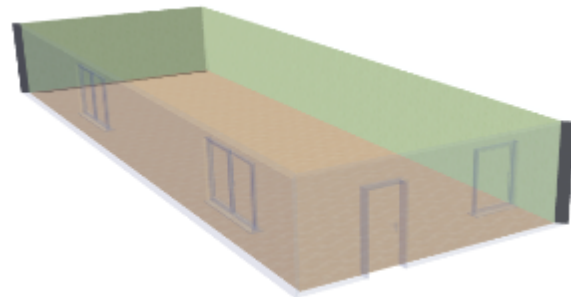

Figure 3

Figure 4

3.6 Aligning objects

The exact alignment of room and furniture items is of vital importance during the planning process. pCon.planner 6 offers you some useful functions that will help you to position the objects perfectly.

Contents

3.6.1 Coordinate systems and reference point

pCon.planner allows **two-dimensional** as well as **three-dimensional** planning, which consist of **two or three coordinate axes** respectively. The software provides a **static, a priori defined standard coordinate system (world coordinate system - WCS)** as well as the option of using a **user coordinate system (UCS)**.

The difference between both coordinate systems is that the **origin of the WCS is fixed** in terms of **position and orientation**, whereas the **UCS can be rotated and moved.**

The coordinate systems help you position the objects. The **UCS** is particularly useful when **accurately aligning objects in the desired spatial relation to one another**.

World Coordinate System (WCS)

On every **start of pCon.planner** you work with the **WCS by default**. Its **origin** and **orientation** are **static.** The WCS gives you the **basic orientation** of the viewport and is important whenever you want to return from a rotated orientation to the default orientation (more information can be found below.)

The **origin of the WCS** is also referred to as the **absolute zero** in every drawing.

User Coordinate System (UCS)

In contrast to the WCS the **origin** of the **UCS** can be **set anywhere** in the drawing and its **orientation can be changed**. This gives you great **flexibility for** the **alignment of** the **objects** in your drawing. The chapter "Aligning objects using a User Coordinate System" explains in detail how to use the UCS to align objects.
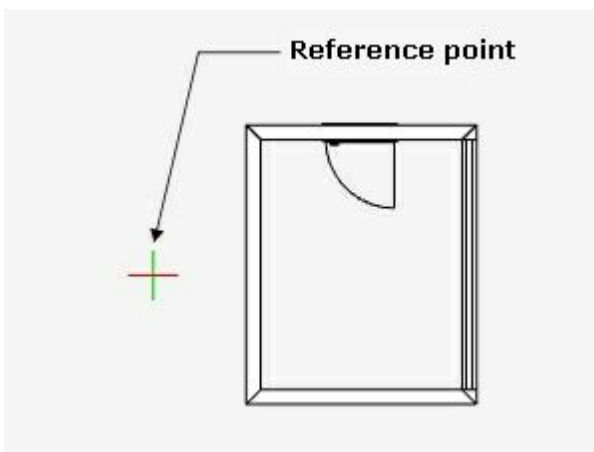
Reference Point

Figure 1

The **origin** of the **WCS or** the **BCS** is always determined by **one and the same reference point**.

Figure 1 displays a **reference point to the left** of the room (in the Top view).

On start of pCon.planner the **reference point** is always **located at the zero point** of the WCS.

It can be **moved or rotated** with the relevant entries in the Context Menu **or** by pressing the **Spacebar** on your keyboard.

Move Reference Point

Moving the **reference point** is always associated with **moving the origin of the UCS**.

To move the reference point just **move the cursor** to an arbitrary place in your drawing **and press** the **Spacebar**. **Alternatively** you can click **"Move BCS"** in the Context Menu.

Rotate Reference Point

Along with the possibility to move the **BCS** you can **rotate** it. **Move** the **mouse to** an **object** that is **already positioned in the desired orientation**, press **"v"** or press "**Rotate BCS" in the** Context Menu. The orientation of the BCS will align itself to the orientation of this object.

Reset Reference Point

You can **reset** the **orientation** as well as the **origin of a BCS**.

The <u>Context Menu</u> entry "**Set WCS direction**" turns a rotated coordinate system **back to** the **standard orientation of** the **WCS**. The **origin** of the BCS, however, **remains unchanged.**

Via the <u>Context Menu</u> entry "**Set WCS origin**" you **move** the **origin** of the BCS back **to** the **standard origin of** the **WCS** (zero point). The **orientation** of the BCS, however, **remains unchanged**.

3.6.2   Aligning objects using the User Coordinate System

The **reference point determines**, as described in the previous article (<u>Coordinate systems and reference point</u>), the **zero point** of the coordinate systems. Its **orientation represents its rotation**.

The two following articles describe how to align objects with the help of a <u>reference point</u> in a rotated as well as an unrotated coordinate system.

Aligning objects in an unrotated coordinate system

The first example visualizes the **alignment of objects** in an **unrotated coordinate system** by **moving** the <u>reference point</u>. The **orientation** of the unrotated coordinate system **matches** the orientation of the **standard coordinate system**.

Figures 1-7 demonstrate step-by-step the alignment of three bar stools in front of a bar.

Figure 1

- Figure 1 shows a bar with three randomly placed bar stools.

- The task is to arrange the bar stools evenly in front of the bar using a reference point. The bar stools are to be placed in equal distance to each other as well as to the bar.

- The <u>reference point</u> is encircled (Figures 2-7).

- Figure 1 also shows the coordinate cross, which indicates the orientation of the user coordinate system.
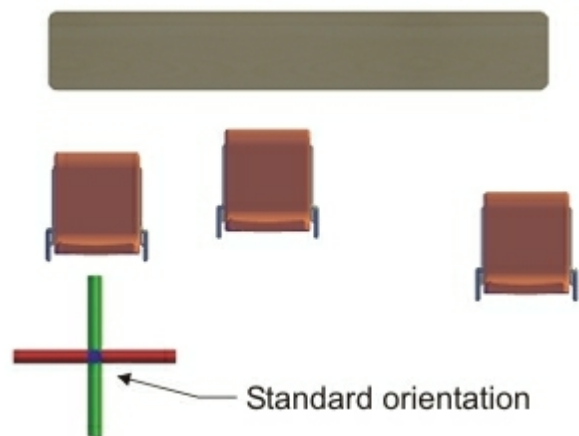

Standard orientation

Figure 1

Figure 2

- The vertical alignment of all bar stools is demonstrated first.

- Move the mouse pointer – as shown in Figure 2 – to the front edge of the left bar stool (see tooltip) and press the spacebar on your keyboard.

- Alternatively click "Move UCS" in the Context Menu.

- This moves the reference point to the location of the mouse pointer. The reference point now marks the new point of origin.
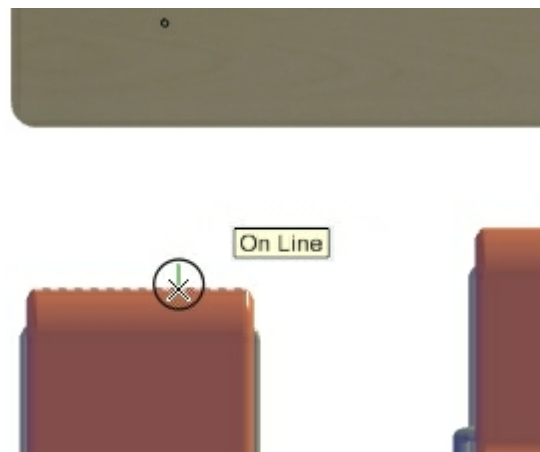
Figure 2

Figure 3

- Select the middle bar stool and then click the front edge of the stool in order to move it. The vertical distance to the reference point is displayed in the green box.

- Enter a zero ("0") to align the stool with the reference point (0m) and as such with the left bar stool.

- Alternatively move the stool with the mouse and click to fix it when the bar stool is on the same level as the reference point.

- Repeat these steps to align the right-hand bar stool at the same distance to the bar.

Figure 3

Figure 4

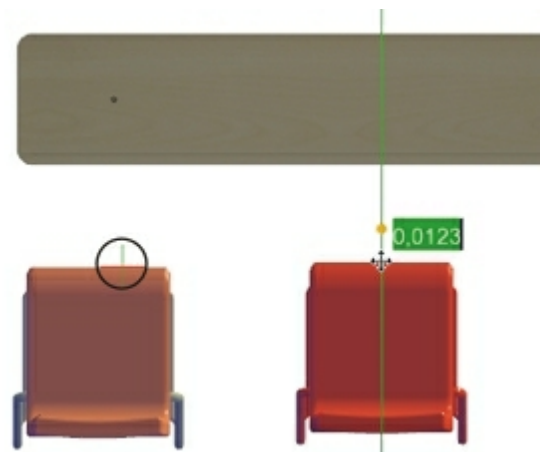- The bar stools are now all placed at the same distance from the bar. Next, they will be arranged in such a way that they are assembled evenly in front of the bar.

- Every bar stool has a length of 45.3 cm. The bar is 2.2 m long.

- The horizontal distances of the right and left stool to the ends of the bar are to be 10 cm. This adds up to a distance of 32.05 cm between the bar stools.

Figure 4

Figure 5

- Move the reference point to the left-hand edge of the bar in accordance to Figure 5 (move mouse pointer to the edge and press the spacebar).

- Click the left stool on the left edge and drag the stool to activate the Move tool. Enter "0.1" and press Enter to place the stool 10 cm away from the vertical line through the reference point.
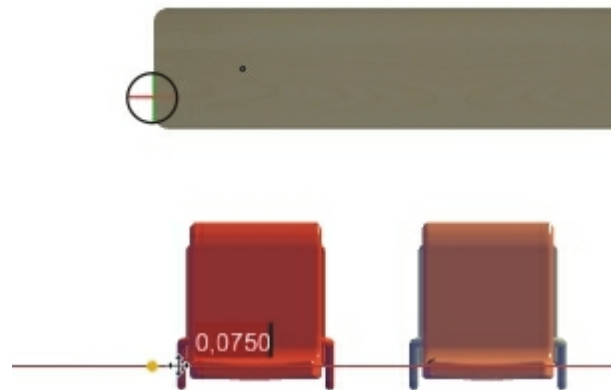
- Alternatively place the stool manually.

Figure 5

Figure 6

- Move the reference point to the right-hand edge of the left bar stool.

- Then move the middle stool to make a 32.05 cm gap between the stools.

- To do this grab the middle stool on its left-hand edge and click again to start the Move tool. Enter "0.3205".

- Alternatively place the stool manually.

- Follow the same steps to align the right-hand stool in the same distance to the middle stool.
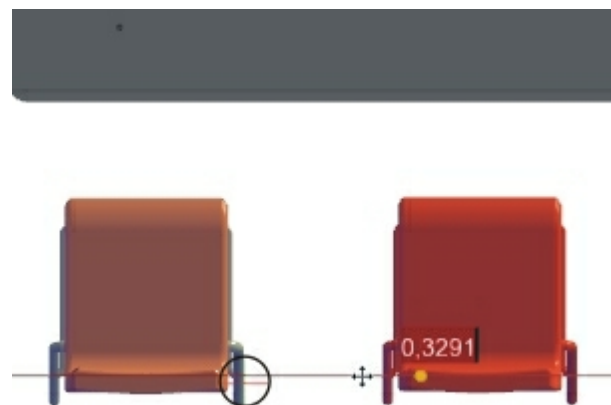
Figure 6

Figure 7

- The stools are now correctly aligned with each other. Lastly they need to be placed at the desired distance from the bar.

- Set the reference point to the edge of the bar facing the bar stools.

- Select all stools and move the group vertically. After appearance of the green box with the distance measures enter the value "0.2".

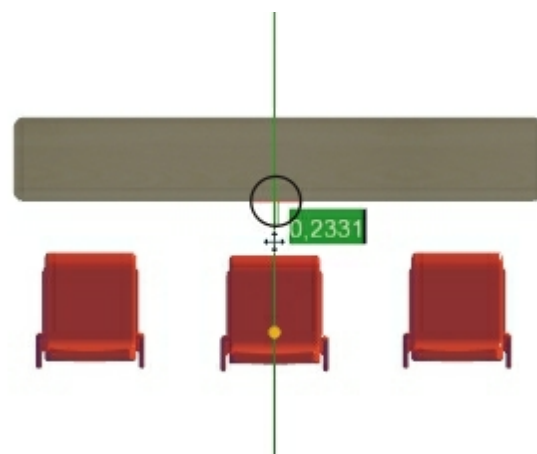- This finishes the alignment process in the standard coordinate system.

Figure 7

Aligning objects in a rotated coordinate system

Apart from aligning room and furnishing items in the standard coordinate system, you can **rotate the coordinate system** to better suit your needs. The following sequence of pictures (Figures 8-13) shows how to do this.

Figure 8

- Figure 8 shows a table and a bench.

- In the unrotated coordinate system, the objects are parallel to one another.

- The task is to turn the two objects through 45° anticlockwise, then to center the bench in front of the table and to add another bench on the other side of the table, also centered in front of it.

- The reference points in Figures 9-13 are encircled.

— Standard orientation

Figure 8

Figure 9

- Select all objects.
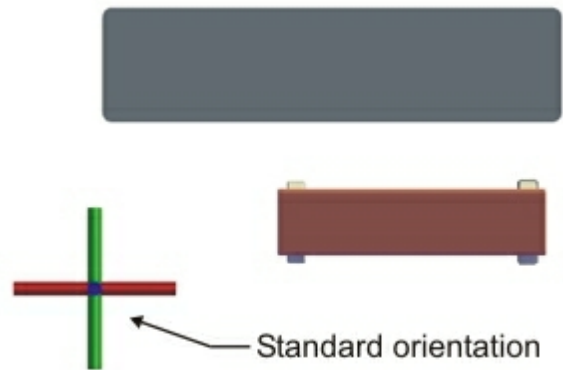
- Double-click the selected elements to start the Rotate tool.

- Rotate the group of elements by 45° anticlockwise. The easiest way to do this is by entering the value after starting the tool. Alternatively you can do the Rotation manually.

- The rotation axes remain in their standard orientation, which you can easily see at the cross marking the reference point.

46,3081

Figure 9

Figure 10

- Table and bench are now rotated by 45°.

- For aligning the bench you first place the reference point on the table edge facing the bench. Move the mouse pointer over the edge and either press the spacebar or select "Move UCS" in the Context Menu.
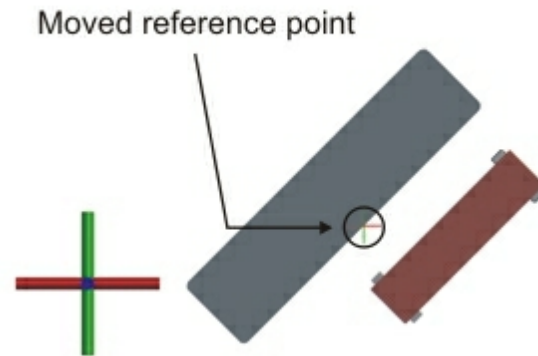
- The result of this step is seen in Figure 10.

Moved reference point

Figure 10

Figure 11

- In order to align the bench you need to rotate the user coordinate system.

- Leave the mouse pointer on the mid point of the table edge facing the bench and press the "v" key or select the Context Menu entry "Rotate UCS".

- The bench can be centered to the table e.g. by clicking one of the mid points of the long edges of the bench, starting the Move tool and entering "0".

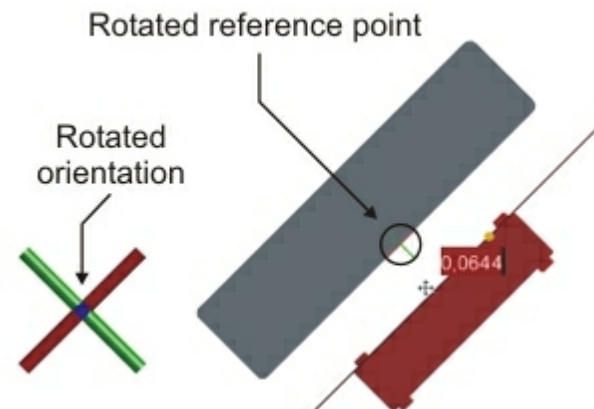

Rotated reference point

Rotated orientation

Figure 11

Figure 12

- Click and hold the bench at the mid point of the upper long edge and start moving it toward the table at a 45° angle.

- The green axis appears to simplify your work.

- Enter a distance of approximately 30 cm between the edges of the table and bench.
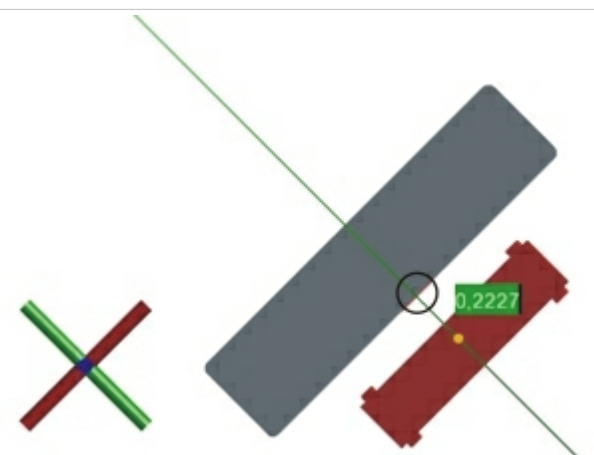
- Alternatively you can manually move the bench.

Figure 12

Figure 13 - Move the mouse pointer to the mid point of the upper table edge and move the reference point by either pressing the Space bar or selecting the relevant entry in the Context Menu. - Click the bench on the edge not facing the table and click again to start the Move tool. - Move the bench toward the other side of the table and while moving press the Ctrl key to create of copy of the bench. - Repeat the instructions above to align the second bench with the table.	 Figure 13
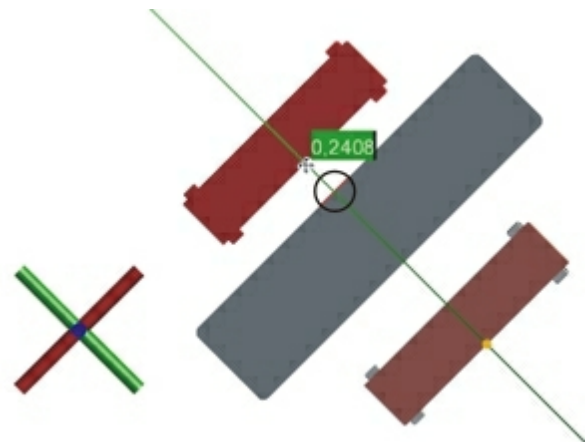
3.6.3 Selecting and deselecting axes

The two or three **interaction axes** in the **bottom–left corner** of the work area can be **individually switched on and off** via mouse-click. The activation and deactivation of axes gives you **more options** for **positioning room and furnishing items** in your drawing.

When you move the **mouse pointer over** an **axis**, this axis is **highlighted graphically** to indicate which of the axes you are currently focusing on.

In Figure 1 the green axis is currently in focus. Click to deactivate (Figure 2).

Figure 1   Figure 2

Using axes in 2D Views

In all two-dimensional camera views (Top, Bottom, Left, Right, Front and Back) **two interaction axes** are available. You can **turn one or both axes off** to serve your needs.

Figure 3

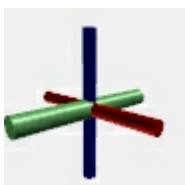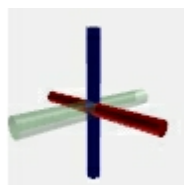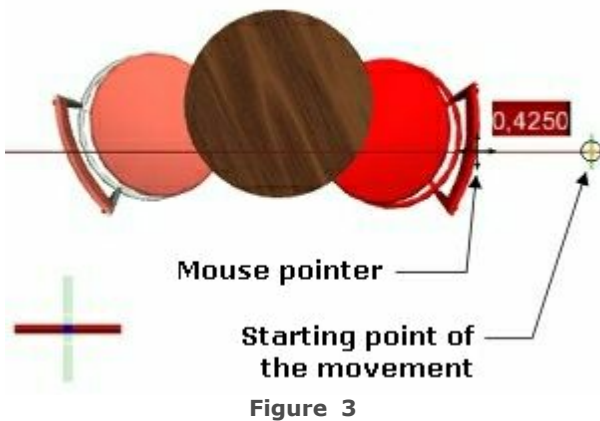- Figure 3 shows a combination of a table with two chairs in top view. The **chair to the right** of the table is being **horizontally** _moved_ **closer to** the **table**.

- To do this, the **green axis was first turned off** via mouse-click.

- Then the _reference point_ was **placed on** the **mid point of** the **back of** the **chair**, which allows to accurately assign the position of the chair before and after the _moving process._

- As shown in the red box in Figure 3, the **chair** was _moved_ **towards** the **left by 42.5 cm**.

- In the example described above, the **chair** was _moved_ **parallel to** the **active axis**. The axis through the _reference point_ is displayed during the movement.

Using axes in 3D views

Designs in 3D are considerably more difficult than in 2D. This has to do with the fact that the mouse only conveys two dimensions.

For this reason **you should** always remember to **use the axes target-oriented** and to **turn them on and off** to best suit your specific needs at the time.

The sequence of pictures (Figures 4-7) demonstrates the utilization of axes in a 3D planning. The task is to rotate a bar stool through 180° and to place it seat-first on top of the bar.

Figure 4

- All following steps are carried out in _perspective view_.

- The **three axes** are **currently activated.**

- Other objects near the bar stool are hidden for simplification.

Figure 4

Figure 5

- The **blue and red axes** are **deactivated**.
- The **stool** is **selected**, so that it appears in red.
- A **double-click** on the bar stool **activates** the <u>rotation function</u>.
- The bar stool is **rotated around** the **green axis through 180°**.
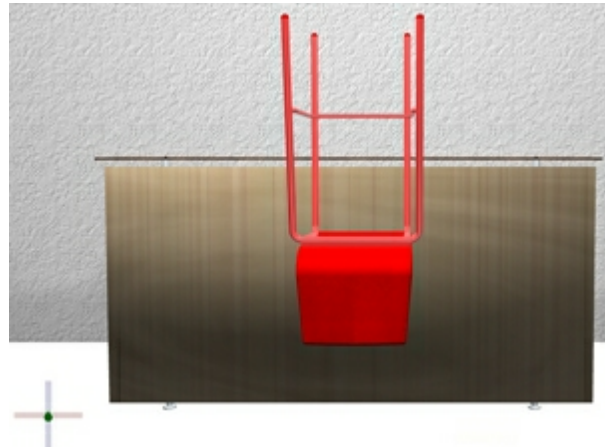
Figure 5

Figure 6

- The **green axis** is **deactivated**.
- The **blue axis** is **activated**.
- The <u>camera angle</u> is **changed** by approximately **90°** so that you look at the bar stool from the right-hand side.
- The **bar stool** is **lifted up along** the **blue axis** until the seat is located slightly above the top of the bar.
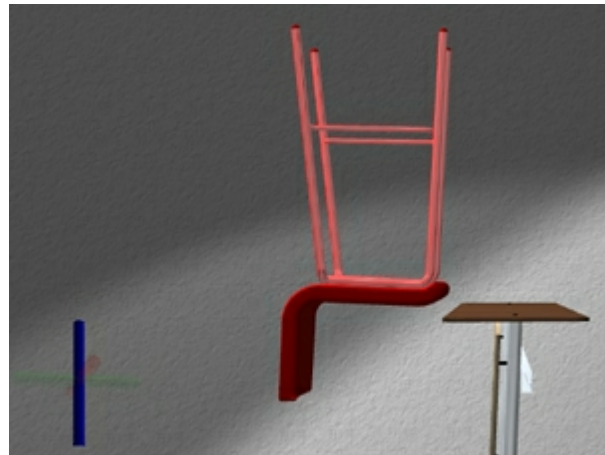

Figure 6

Figure 7

- The **blue axis** is **deactivated**.
- The **green axis** is **activated.**
- The **bar stool** is **moved toward** the **bar** until the back of the stool nearly touches the edge of the bar.
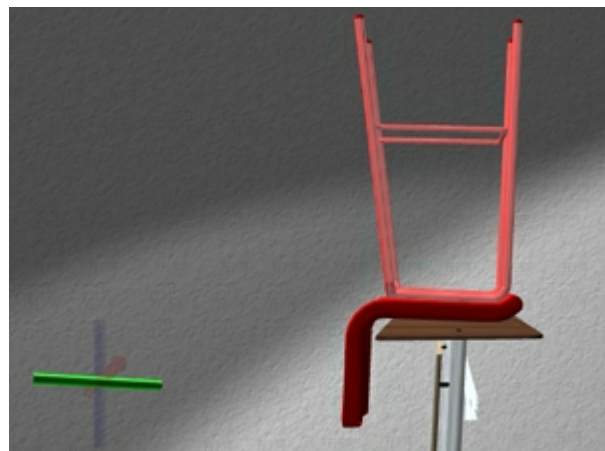- The bar stool is now placed up-side-down on top of the bar.

Figure 7

3.6.4 Using axis snap

The concept of axis snap enables you to **align objects with axes** directly **related to starting points** as well as reference points.

The snap axes are imaginary lines running horizontally and vertically through the said points. When – during an editing session – your **mouse pointer crosses** any of these **axes** it becomes **visible** and the **object** you are working on **automatically snaps to it.**

The **following article** is about **axis snap** in the context of drawing**,** rotation, extrusion and curving, as well as moving **and** scaling. Furthermore, the **deactivation of axis snap** and the **locking of particular axes** are discussed.

Axis snap in drawing, rotation, curving and extrusion

Below, **axis snap** is explained **in a** drawing situation. It applies **identical**ly **to** the rotation**,** extrusion **and** curving **functions**.

The reference point is **important** for axis snap. It is always **placed at the start of drawing an object.** It also **represents** the **direction of** the **coordinate system** which is displayed in the **bottom-left corner of** the viewport.

When, during a drawing process, the **mouse pointer comes close to** one of the **snap axes**, it becomes visible and the object currently being drawn snaps to it.
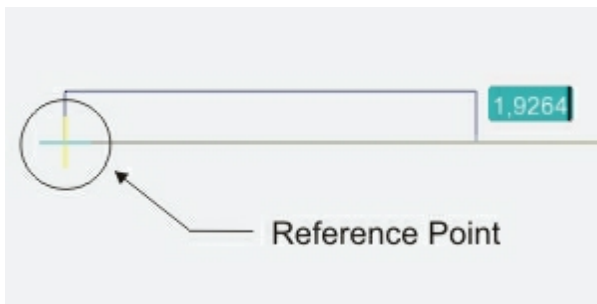
Figure 1

- Figure 1 shows a wall that is being drawn horizontally from left to right.

- To create a wall that is precisely horizontal, it is drawn close to the horizontal axis through the reference point. The wall snaps to the axis and is therefore precisely aligned with it.

Axis snap in moving and scaling

The move and scale functions allow snapping not only to reference point axes, but additionally to axes related to starting points.
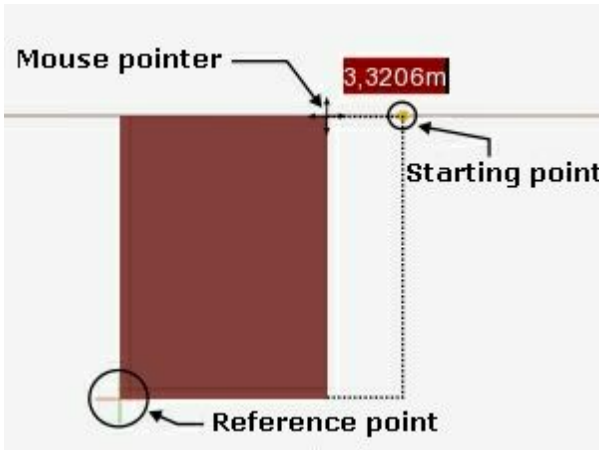
Figure 2

- The starting point is placed at the location where the editing was started. This point is highlighted in yellow as can be observed in Figure 2.

- In Figure 2 the width of a rectangle is downscaled. The original size of the object is marked by da

- shed lines.

- Through the movement of the mouse pointer along the axis through the starting point, the top edge of the rectangle snaps to the now visible horizontal snap axis.

Note

During the **scaling process** you can use the **two vertical axes but also a diagonal scaling axis**. Read more here.

Lock axis

Axis lock is a **helpful** function **when** the **objects are to be** moved, scaled **or** drawn **along** a **particular snap axis**. The example below (Figure 3) further explains the Axis lock function.

Figure 3

- Figure 3 shows the moving process of the chair on the right.

- Axis snap has made the horizontal axis visible.

- If you now choose the Context Menu item "Lock axis" (alternatively press Shift), the axis is frozen. This means that vertical mouse movements do not cause object movement.

- This gives you better control over the horizontal moving process currently carried out.

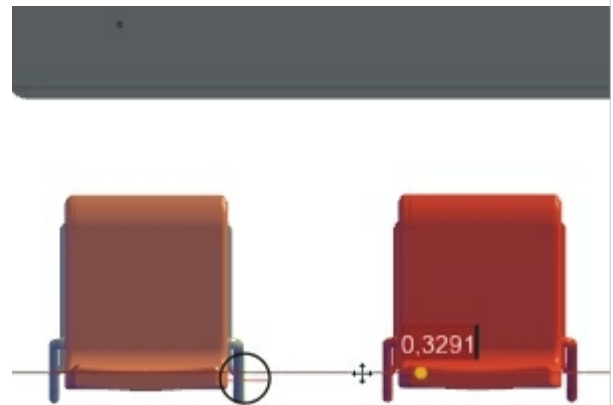- Press Shift or click "Unlock axis" in the Context Menu to deactivate the lock.

Figure 3

Disable axis snap

On occasion the axis **snap function** may **not** be **helpful.** In this case you have the **option to turn it off**.

To **deactivate** the axis snap **move** the **mouse** pointer **over** an **axis** during an editing session, leave it until the Context Menu appears and **click "Disable Axis Snap"**. **Alternatively** you can **press** the **"N"** key **right after snapping to an axis**.

Press "N" again or click "Activate axis snap" in the Context Menu **to re-activate the axis snap**.
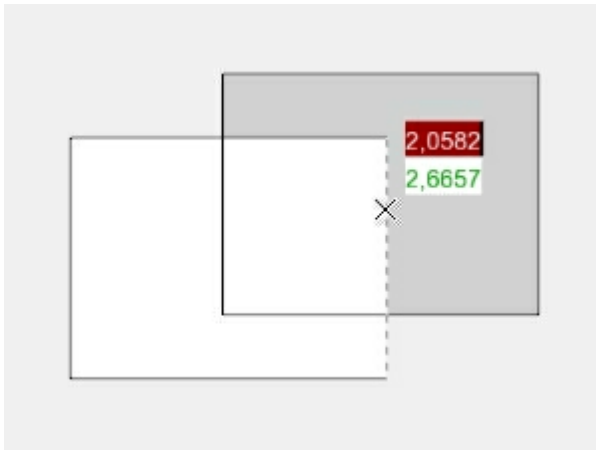
3.6.5 Using ojects snap

Figure 1

Object snap is another instrument for **aligning objects**. Similar to axis snap it **provokes snapping to elements.** Snap points and edges are **important** in this context.

Figure 1 shows an example for object snap:

The **rectangle on the right** has been **moved toward** the **white rectangle**. The **movement** was **initiated in** the **middle of** the **right rectangle** where the mouse pointer was located at the time.

When the **mouse pointer came close to** the **right-hand side edge** of the **white rectangle it snapped to it.** The **relevant edge** of the white rectangle now appears as a **dashed line**.

Object snap can be **deactivated** via the Context Menu **("Disable object snap") or** via pressing the **"H"** key.

3.6.6 Configure snapping types

You can select the snapping type you want to use. This can be of advantage since the selection of some snapping types prevents the unintentional snapping to certain objects.

Selecting a snapping type

To select a snapping type just click the Magnet icon on the Status bar in the bottom right corner of the application.
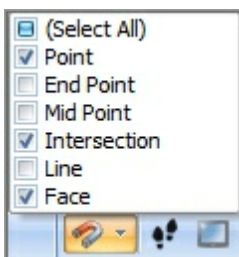

Figure 2

Figure 2 shows **all snapping types**. The **checked** types are **enabled**, the **unchecked** are **disabled**. Click "(Select All)" to enable / disable all snapping types.
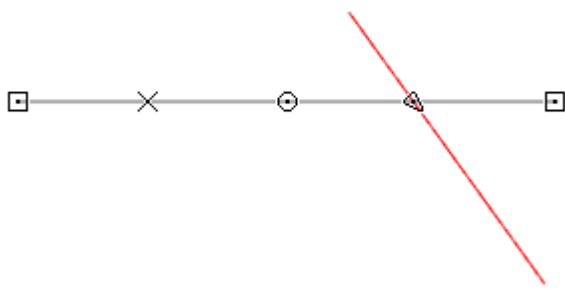
Figure 3 illustrates **all possible snapping types** of a **line** that appear when moving the cursor over the grey line. The **rectangles** are the **end points** of the grey line, the **circle** marks the **midpoint** of the grey line and the **triangle** marks the **intersection point** of the red and the grey lines. The **cross** symbolizes that the **snapping type "Line"** is **enabled**.

Figure 3

Example: Snapping type "Line"

As to be seen in figure 4 the **snapping type "Line"** is **enabled**. The selected armchair was touched at its outer edge and **moved towards** the **wall**. When it **comes close** to the wall, the fixed point of the armchair **snaps to it**. The snapping line is displayed as a dotted line.
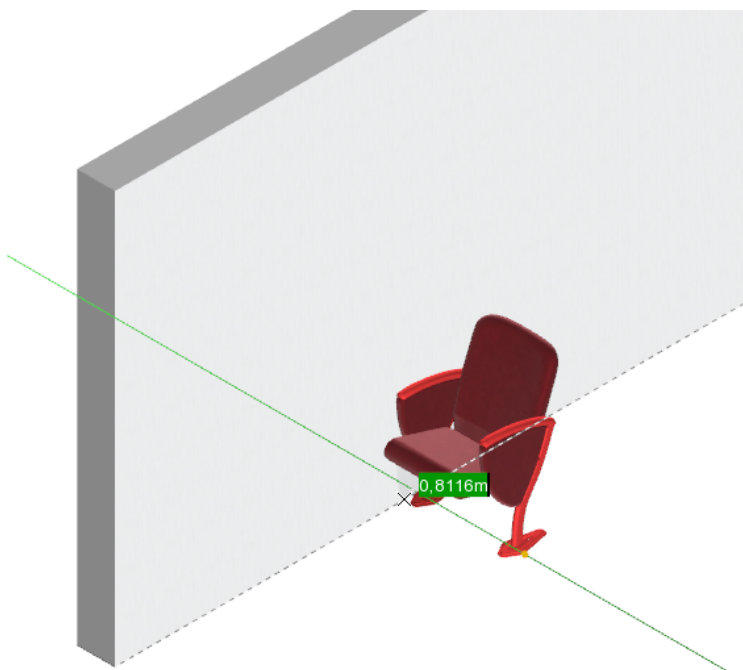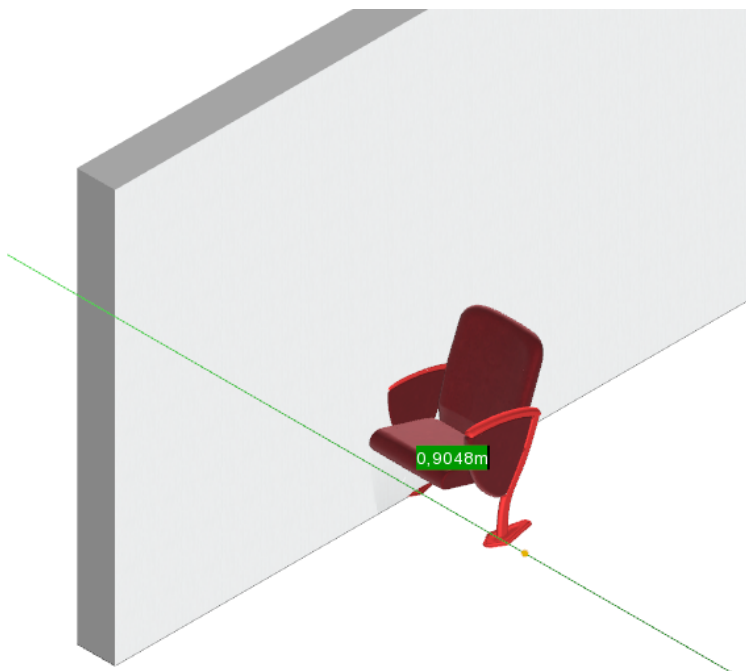

Figure 4

In Figure 5 the **snapping type "Line"** was **disabled**. You can now **effortless move** the armchair **through the wall** since it does not snap to the wall. This can be of advantage if you want to place a piece of furniture in a certain angle close to the wall without snapping to it.

3.7 Design and furnish rooms

This chapter is dedicated to the **room and furnishing planning**. In the following paragraphs you will learn how to **create rooms**, how to **outfit them** with windows, doors, floors, lighting and furnishing items and how you can **assign materials** to objects.

Contents

1. Walls
    1. Drawing walls
    2. Moving walls
    3. Rotating walls
    4. Scaling walls
    5. Stretching and shortening walls
    6. Curving walls
    7. Extruding walls (adjusting the height)
    8. Connecting, disconnecting and splitting walls
    9. Grouping walls
2. Doors, windows and wall openings
    1. Insertion process
    2. Modifying position and size
    3. Opening options for doors and windows
    4. Round wall openings and niches
3. Floors
4. Objects
    1. pCon.catalog client
    2. 3D warehouse
    3. Importing file formats
    4. Inserting pictures
    5. Inserting texts and annotations
5. Illumination
    1. Spotlight
    2. Directional light
    3. Point light
    4. Default illumination
6. Drawing elements
    1. Creating drawing elements

3.7.1 Walls

The following chapter contains **all important functions** you need **for creating and editing** the room element **"wall"**.

Contents

3.7.1.1   Drawing walls

The basis of each planning process is a **room built of several walls**. Along with the **simple rectangular room**, which you can draw by **only two mouse clicks**, pCon.planner offers you **plenty of possibilities** to create **individual rooms**.

The first two articles are a **quick reference** to create individual or simple rooms. The **following sections** explain **details**, such as **defining angles, length and hight of walls**, the **axis snap** or the use of **wall starting points and wall end points**.

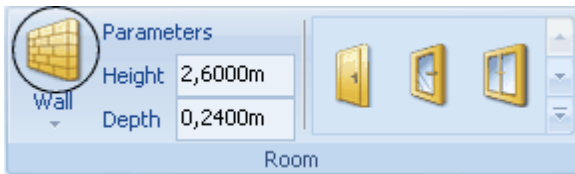**Contents**

Creating individual rooms

Figure 1

With the **Wall icon** (encircled black in figure 1) on the Insert tab (Room group) you can draw single walls, that form rooms. Follow the steps below to draw a room.

1. **Click** the **Wall icon** on the Insert tab (Room group) to start the wall drawing tool.

2. **Click** the viewport to set the **starting point** of the wall.

3. **Draw** the walls by **moving the mouse pointer** into the desired direction.

4. **Click or press Enter** to fix the wall.

5. **If you do not press "Esc" or click "Cancel"** in the Context Menu, the **drawing tool remains active** and repositions automatically at the end of the recently drawn wall.

6. Now you can **draw all walls** as described in item 3 and 4 until the room is complete. You just need to position the starting point of the next walls right onto the end point of the previous one.

   Figure 2 displays a room in the top view and illustrates the order in which the walls were drawn.
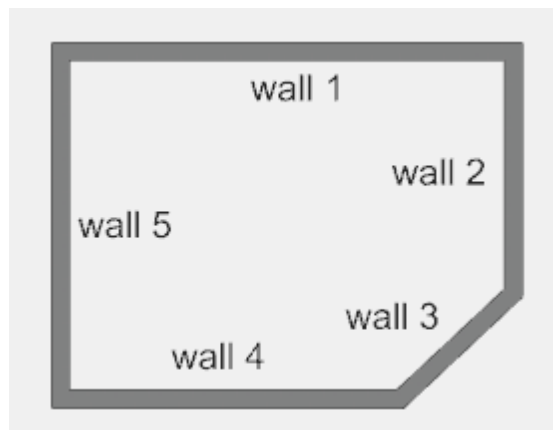
Figure 2

Drawing rectangular rooms
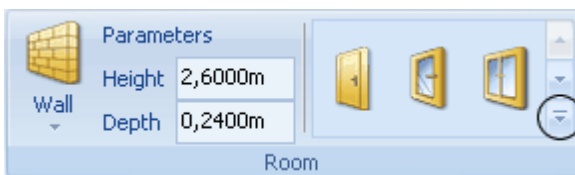
Figure 3

pCon.planner makes it **very easy** to **draw simple rectangular rooms.**

The **Room menu** (Insert tab) contains an **entry for rectangular rooms** that can be access by a click onto the **arrow** encircled black on figure 3.

To draw a rectangular room follow the steps below:

1. **Specify** the **"height"** and **"depth"** of the **wall** in the **Room group** on the Insert tab.

2. **Select** the **entry "Rectangular room"** in the **Room group** on the Insert tab.

3. **Click** the viewport to set the starting point of the room.

4. **Move** the **cursor** into the **desired direction** to draw the room. A **final click finishes** the room**. Alternatively** you can **enter exact values** for the length and the width of the room. For more information about how to use the keyboard to enter values click here.

Defining hight and depth
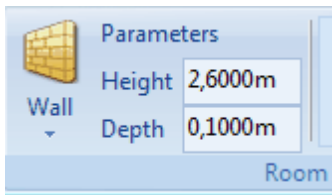
Figure 4

Before you start drawing walls you should **assign their height and depth.** Enter the **specific values** into the appropriate **boxes** next to the wall icon.

For more information on dealing with **different wall heights in the same room** go to **chapter** Extruding walls.

Defining angle and length
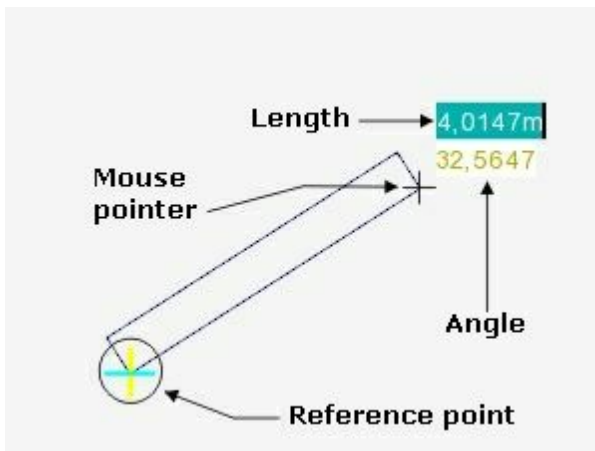
Figure 5

During the process of **drawing walls** (see " creating individual rooms") you **can change the length and the angle** of a wall.

The **starting point** of a wall **is** at the same time the reference point. Depending on how long and at what angle you draw the wall (item 3 of the drawing process) it displays different values right next to the mouse pointer.

Figure 5 illustrates that the wall end point is 4,0147 m away from the reference point (length) and has an angle of 32,5647°.

You can either change the angle and length by **moving the cursor or by keyboard entry**. Click enter to read more.

Notes

The **reference** for the **angle** is the **horizontal axis**. If the wall is **drawn along this axis** the angle is **0°.**

Moving wall starting point and wall end point
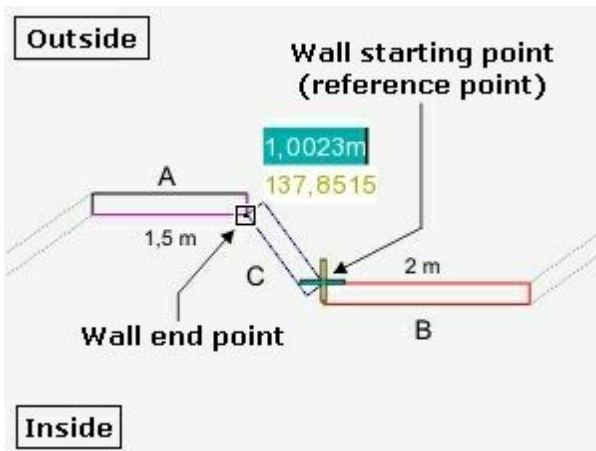
Figure 6

During step 3 of the drawing process you can **press the "Ctrl" key and/or "Alt"** to **shift the wall starting point** (reference point) **or the wall end point.**

Figure 6 demonstrates with an example the use of this feature. The walls A and B are to be interconnected by a third wall (C). The inside dimension of wall A (1,5 m) and the outside dimension of wall B (2 m) are not to be changed. To do this the wall starting point and the wall end point of walls C are moved in the appropriate direction.

> **Note**
>
> **Wall starting point and wall end point** derive from the **snap points** as described in the chapter "Object Structures"**.**

Using the axis snap
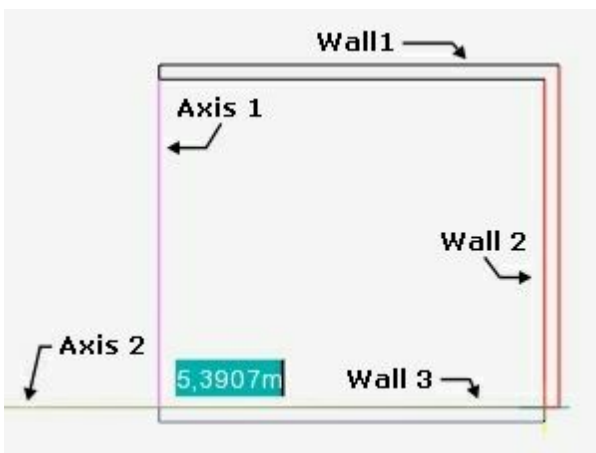
Figure 7

The concept of axis snap enables you to **align objects with** the help of **snap axes** that **show up during the drawing process**. These axes **represent** the **orientation of** the **coordinate system.**

When – during an editing session – the **mouse** pointer **crosses** the reference point **horizontally or vertically**, the snap **axes become visible**.

Walls have **additional snap axes between** the **snap points in the corners**.

Figure 7 illustrates the process of drawing the third wall of a room. At the horizontal position of 5,3907 m the snap points of wall 1 and wall 3 are perfectly opposite each other and thus axis 1 is displayed.

Axis snap particularly **facilitates** the construction of **rectangular rooms**.

Properties dialog box

You can **modify the hight and the depth** of a **wall** that was **already drawn** in the

Properties dialog box. Just <u>select</u> the **wall** to be modified and then **click** the **Properties button** on the <u>Home tab</u> (Edit group). In the Properties dialog box you can **enter the precise values.**

3.7.1.2   Moving walls

Moving walls is fundamental for modifying the layout of a room. The pCon.planner therefore offers **several options for moving walls**. You can either use so-called **object interactors or** you can work with **object surfaces, edges and snap points.**

Contents

1. <u>Moving walls without interactors</u>
    1. <u>Option 1</u>
    2. <u>Option 2</u>
2. <u>Moving walls with interactors</u>
    1. <u>End interactors</u>
    2. <u>Mid interactor</u>

Moving walls without interactors

The **moving of walls** can be carried out with <u>object surfaces, object edges and snap points</u>. The following example demonstrates **two options.**

Option 1

1. <u>Select</u> **a wall** and then **click** either the **surface, edge or one of the** <u>snap points.</u>

2. **Move the wall** into the desired direction. **Figure 1** shows how the mouse pointer changed into a cross indicating the moving operation. The displayed values express the vertical and horizontal distance between the reference point and the current mouse position.

3. <u>Enter the relevant values</u> and then **press Enter** to perform the move. The **tab key** allows to **jump between the two values**.
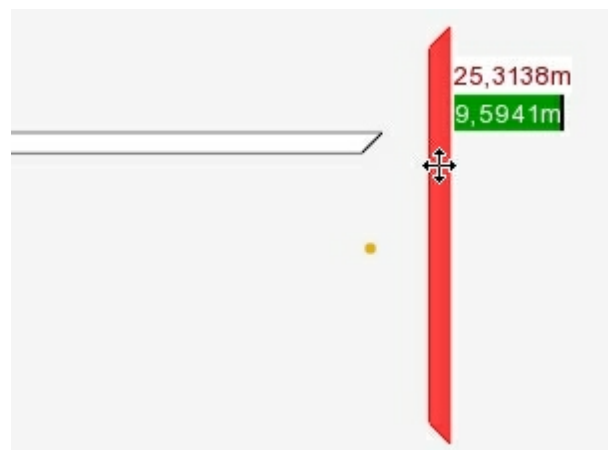

Figure 1

If you decide not to work with <u>exact values</u> click the desired position of the wall to move it to this location.

Option 2

The second option for moving walls is to **use the** <u>Move tool</u> in the Tool group on the <u>Edit tab</u>.

1. <u>Select</u> the **wall**, then click the <u>Move tool</u> (<u>Edit tab</u>, Tools group)
2. **Move the mouse** pointer **into the** <u>viewport</u>. You can see the mouse pointer change into a cross indicating the Move tool.
3. **Click anywhere** in the <u>viewport</u>. This **activates the Move operation.**
4. **Move the mouse** pointer to move the wall to **the desired location**. **Alternatively** you can <u>enter exact the values</u>.
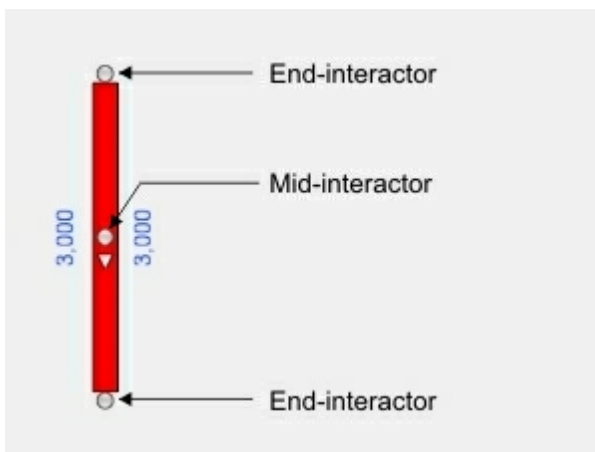
Moving walls with interactors

Figure 2

The differences between moving walls with interactors to the methods described above are explained as follows.

Every selected wall features **two end-interactors** and **one mid interactor**, which are pointed out in Figure 2.

End interactors allow to **change the length and angle of a wall** while the opposite end-interactor remains fixed to its location.

The **mid interactor** allows you to **grip and move a wall**. When you move a wall via the mid-interactor, the **adjacent walls are automatically adjusted**. The room compound is therefore obtained.

End interactors

They allow you to **modify the length and** the **angle of a walls** by **moving one** of the **end**s while the **other end remains** at its position.

1. <u>Select</u> **a wall** via mouse-click and **click one** of the **end interactor**s.
2. You can now **change the angle** of the wall **as well as its length** by simply **moving** your mouse **sideways or up and down**. The <u>reference point</u> is automatically placed at the opposite end of the wall, the location of which remains unchanged (see Figure 3). All values displayed along the wall relate to the <u>reference point</u>.
3. **Click** the **desired location** or <u>enter values</u> to determine the new position of the wall.

> **Notes**
>
> In order to change the length of walls please also refer to the paragraph <u>Stretching and shortening walls</u>.

Mid interactor

When you move a wall via the mid interactor, the **adjacent walls are automatically adjusted**. The room compound is therefore obtained.

1. **Select** a **wall at the mid interactor**. Note that the reference point is automatically placed at the same location.

2. You can **move the wall up and down or sideways**. In Figure 3, for example, the wall was moved to the left starting at the reference point. Both adjacent walls were shortened accordingly. The room compound was obtained.

3. A **final click finishes** the movement. Alternatively you can enter exact values.
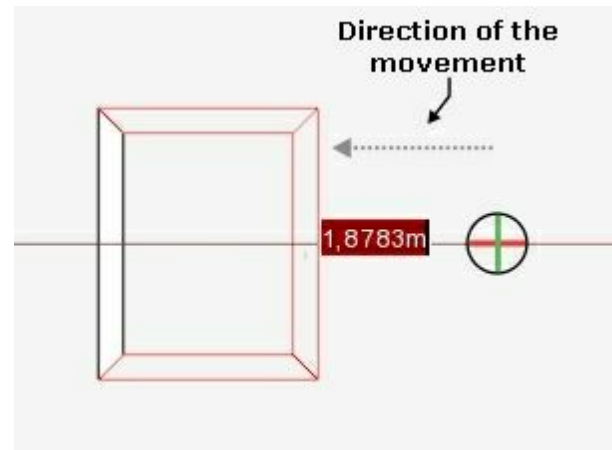

Figure 3

 Notes

1. The **Move tool cannot be applied in combination with interactors**.

2. The **activation of** axis snap allows to **easily move walls along a fixed axis**.

3.7.1.3   Rotating walls

The pCon.planner allows to easily and quickly rotate walls. To do this the **walls need to be selected**. The rotation function will be explained in the following example. The top view will be used to take advantage of the good general overview provided by this camera perspective.

Starting the rotation

There are **two options** for **starting** the **rotation function**.

- **Double-click** the already **selected wall.**
- The Rotate tool is started at the location of the double-click.

or:

- **Click** the rotate tool on the Edit tab and **click** anywhere in the viewport**.** The Rotate tool is started at the location of the click.
- Make sure that the **wall** that you wish to rotate is selected **beforehand**.

Performing the rotation

After **starting** the rotation a **yellow circle** (Rotate tool symbol) appears in the <u>viewport</u>. The <u>reference point</u> is located in its center and a rotation axis points to the right to indicate a 0° rotation.

To carry out the rotation you first have to **click** the <u>viewport</u> **again** to **determine** the **starting point** of the rotation. Then the **rotation** of the wall **begins**. The rotation can be done **manually or via** <u>entering a specific anlge</u>. Figure 2 shows the previously horizontal wall from Figure 1 rotated by 45°.
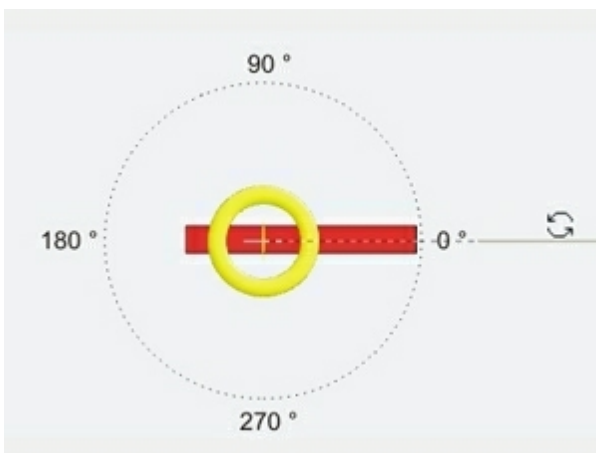

| Figure 1 | Figure 2 |

3.7.1.4 Scaling walls

pCon.planner features a **scale tool** that allows you to to **modify the size of single walls** but also **entire rooms**. As already described in the chapter "<u>Scale</u>" you can perform the **scaling process with scale interactors, scale distances and scale axes**.

Scaling with interactors

1. First <u>select</u> **the wall** to be scaled.

2. Then **click** "Scale" in the **Tools group** on the <u>Edit tab</u> to **start the scale tool**. The wall now displays **yellow dots (2D) or yellow balls (3D)** - so-called **scale interactors**.

3. **Click and hold** one of the **interactor**s and **move the mouse** to scale the wall up or down. **Alternatively** you can <u>enter precise values and measurements</u> to influence the size of the wall.

4. When the wall has reached the **desired size click again or press Enter** to confirm.

Scaling with distances

1. First <u>select</u> **the wall** to be scaled.

2. Then click "Scale" in the **Tools group** on the <u>Edit tab</u> to **start the scale tool**.

3. **Click** anywhere in the <u>viewport</u> to **set the starting point for** the **up-scaling or down-scaling** of the element.

4. **Move the mouse** from the starting point **into the desired direction** and **click again** at the desired distance.

5. Now **move the mouse** over the viewport to **start scaling the wall**.

6. At the desired size **click again to finish** the scaling process.

Alternatively you can enter precise values and measurements during steps 4 - 6.

Using scale axes

Scaling axes help you **scale walls proportionally or one-dimensionally**.

The **proportional (uniform) scale axis** becomes **visible** as soon as the **cursor** is moved **along** the virtual **line between starting point and end point**.

Figure 1 illustrates the **proportional scaling of a wall**. The original size of the wall is displayed with a blue dashed line. The wall was scaled with the help of a scale distance.

The **one-dimensional scale axes** become visible whenever the **cursor crosses a point** in the coordinate system **that forms a horizontal or vertical line with the start point of the scaling.**

Figure 2 illustrates one-dimensional scaling of a wall along the vertical (green) scale axis.
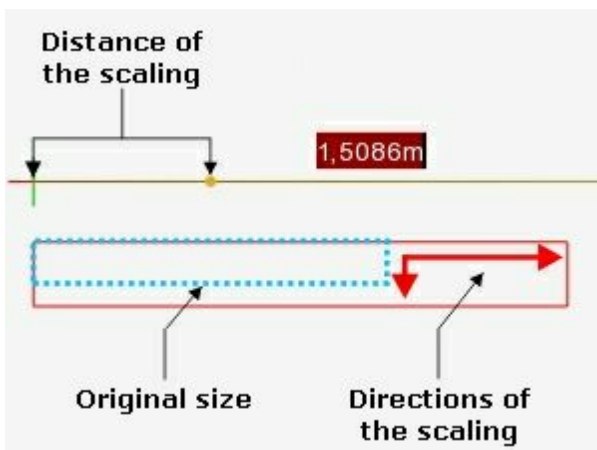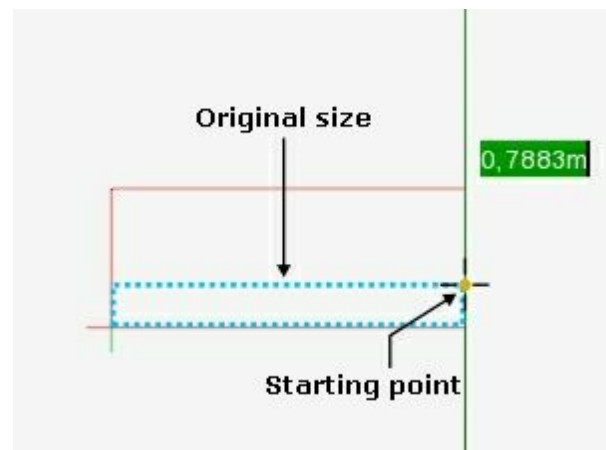

| Figure 1 | Figure 2 |

3.7.1.5   Stretching and shortening walls

The **length of walls** can be **changed** via move operations as well as scaling. **Another option changes** the **length through determining directional interactors** (Figure 1) and entering values.

Follow the steps below:

- Select a single **wall**.

- **Click** the **directional interactor** (Figure 1) to determine the direction of the change in length.

- **Click** one of the **length values** (Figure 2) of the wall and <u>enter a value.</u> Of course you can also enter a factor, e.g. "*2" .
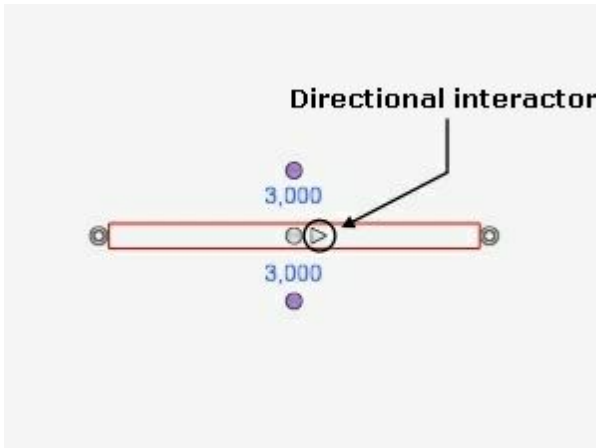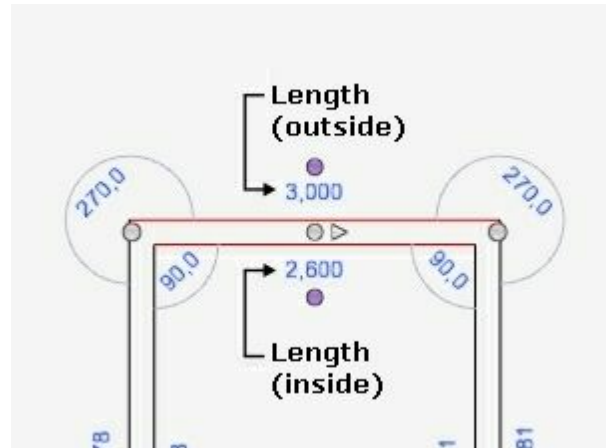
- **Press Enter** to confirm.

Figure 1

Figure 2

Note

A change in length of **one single wall** using the method described above **alters the proportions of the entire room.**

3.7.1.6 Curving walls

Rooms are often not entirely perpendicular but instead are **curved** in some way or other. pCon.planner therefore provides options for curving walls to better allow your planning to be adjusted to reality.

Figures 1-4 and the associated explanations demonstrate the curving of walls.

Figure 1

- The curving function is carried out using **curvature interactors.**

- These become **visible when** a **wall is selected**.

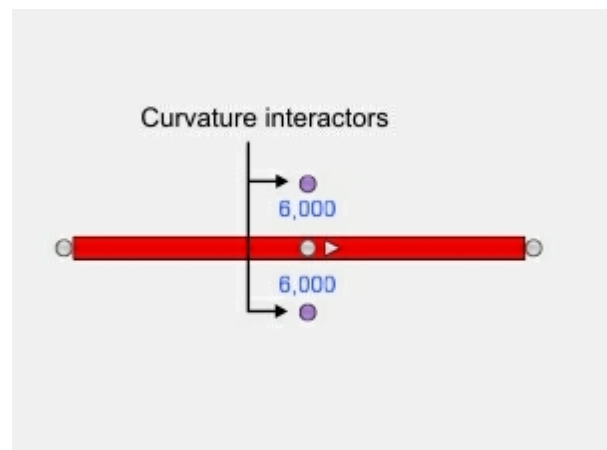- Every wall has **two** of these **interactors.**

Figure 1

Figure 2

- To curve a wall **click** one of the **interactor**s and **move** the **mouse** pointer.
- The **green box** displays the **distance between** the **mid point** of the wall to the reference point (encircled in Figure 2).
- This value is called the **height (H)**.
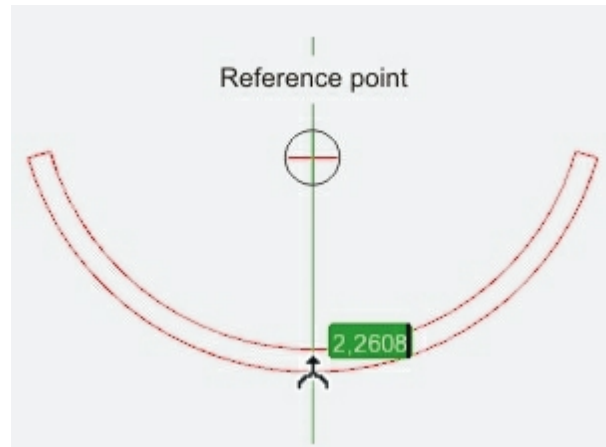
Figure 2

Figure 3

- You can **manually curve** a wall. Simply **click to finish** the operation when the wall has reached the desired curvature.

  Or:

- Enter the exact height of the desired curvature and press Enter.

Figure 3

Figure 4

- The curvature of a wall is **never definite**. **Changes** can **be carried** out **via curvature interactors, end-interactors** or **via height and radius.**
- Figure 4 demonstrates the use of the right end interactor to modify the curvature.
- The value input field right next to the mouse pointer displays the distance and the angle to the reference point (encircled black).

Figure 4

3.7.1.7 Extruding walls (adjusting the height)

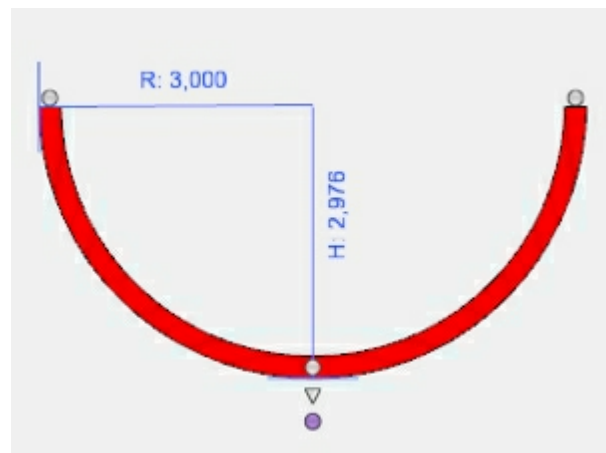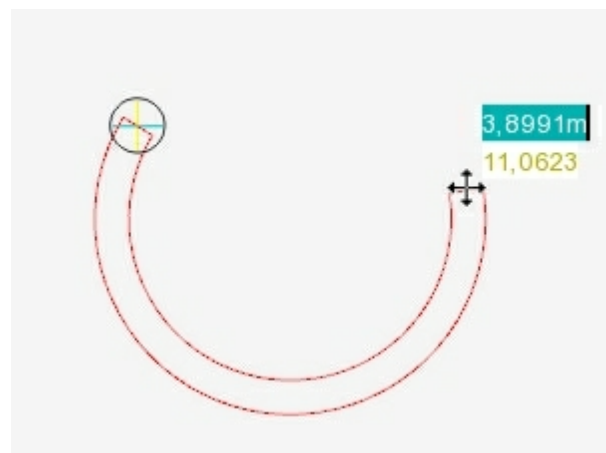In the context of **walls**, **extrusion** refers to the **modification of** their **height**. The drawing process allocates an identical height to all walls. Through extrusion you can **assign differing heights** or even **sloping walls**.

Before you use the function you should **choose a suitable** camera view. Most of the time, the side perspectives such as **Front, Behind, Left of Right** will be the most suitable views.

Figures 1-3 demonstrate the extrusion function.

Figure 1

- Every wall has **three Extrusion interactors** (see Figure 1).

- The **two end-interactors** allow you to **create slopes.**

- The **interactor in the middle** allows you to **change the overall height** of the wall.

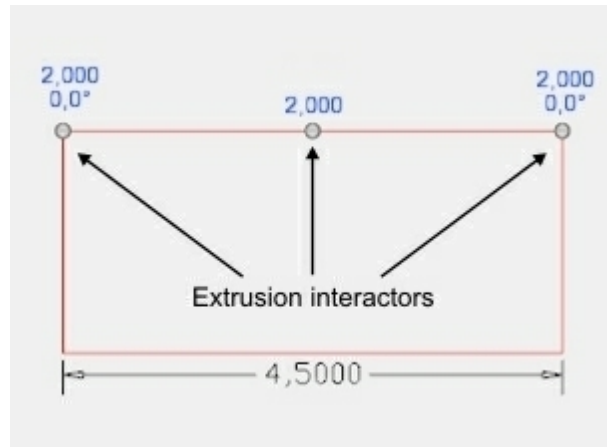Figure 1

Figure 2

- **Click** the **appropriate interactor** to start the Extrude tool.

- Now you can **adjust the height** by **moving the mouse pointer** (Figure 2).

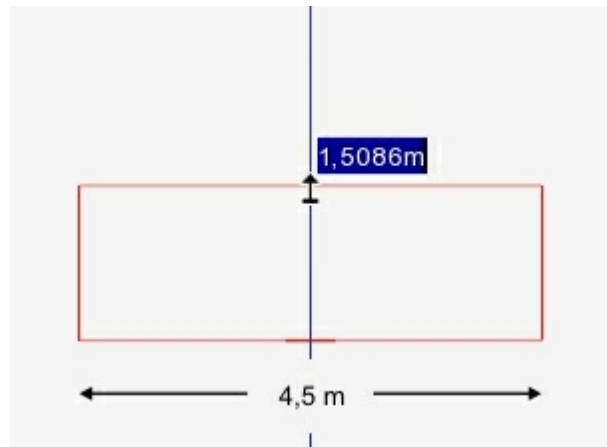- You can also enter the associated height into the blue box.

Figure 2

Figure 3

- To create a **sloping wall**, just **change the hight or the angle** of **ONE** of the **end interactor**s. Click the relevant values above the extrusion interactors and enter the numbers, then press Enter.

- On **Figure 3** you can see a wall with a **sloping ceiling.** The height of the wall varies by 1 m along the entire length of the wall. At a wall length of 4.5 meters this adds up to a 12.5° angle.
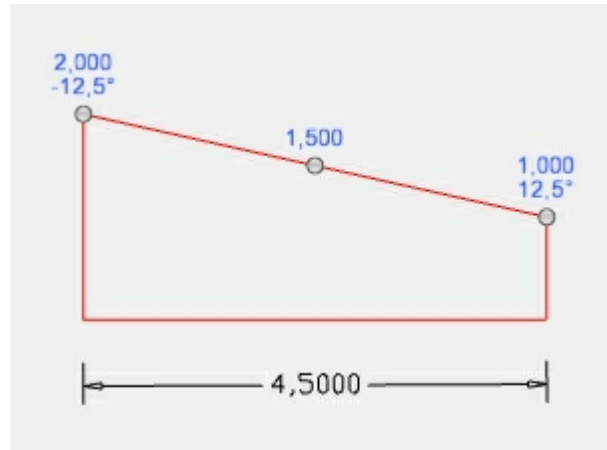
Figure 3

Note

You can **assign negative angles** by entering a **minus (-)** in front of the number.

3.7.1.8 Connecting, disconnecting and splitting walls

The pCon.planner provides **three special tools** for **assembling walls**. They can be accessed via the **wall icon** in the **Room group** on the Insert tab. The three functions will be described as follows.

Connecting and disconnecting walls

Via the **Connect function** you can **attach walls to one another**. A typical application is when two single walls meet and are to be connected to each other (Figure 1). The connection function **removes any gap** between them.

Select the relevant **walls** and **click "Connect"**. Figure 2 shows how the connection made both walls slightly longer.

Figure 1

Figure 2

The **Disconnect function dissolves** existing **connections**. <u>Select</u> the **walls** which are to be disconnected and **click "Disconnect".**

 Note

 The Connect function allows you to **connect any number of walls**. The only requirement is that they **intersect.**
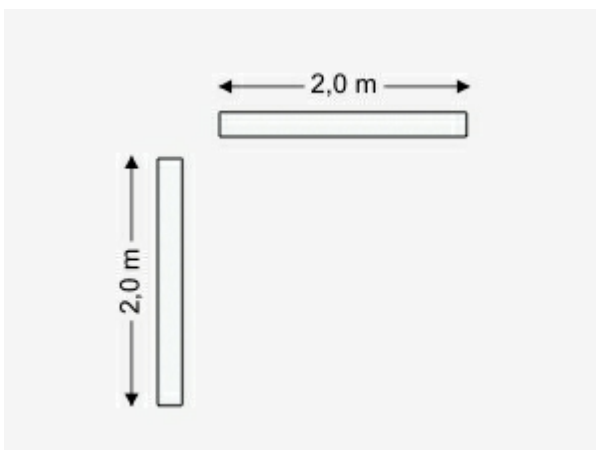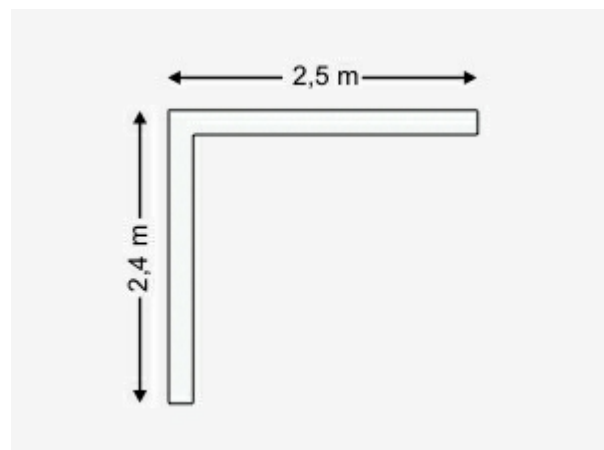

Splitting walls

The Split function allows you to **split walls** to enable **working on its pieces independently**.

For splitting walls follow the instructions below:

- <u>Select</u> the **wall** which is to be split.

- **Click** the **arrow below** the **wall icon** (Room group, <u>Insert tab</u>) and **click Split**.

- The <u>reference point</u> is automatically **placed at the mid point** of the wall (encircled in Figure 3). This ensures that you can precisely **halve the wall**, although you can choose any point along the wall for splitting.

- **Click** at the **desired location** on the wall to **set the splitting point or** <u>enter the exact value</u> and press Enter.

- The wall has now been split. In Figure 4 you can see that the horizontal wall is now made up of two equal parts. Each part has a length of 1 m.
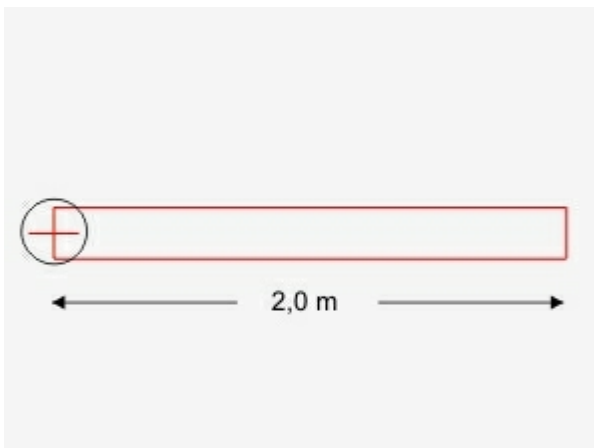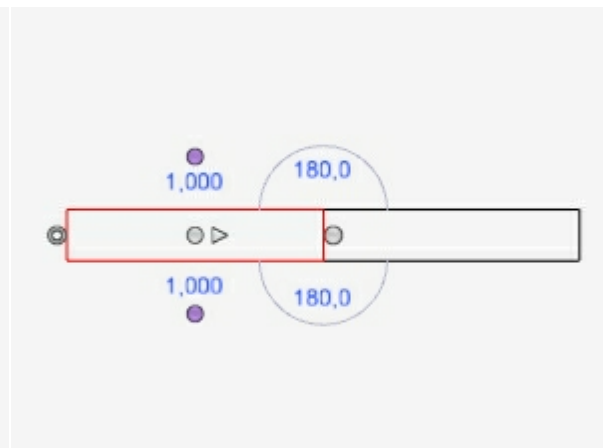

| Figure 3 | Figure 4 |

3.7.1.9   Grouping walls

Oftentimes it is more efficient to **work on several walls of a room, or an entire room, at the same time** rather than modifying each wall separately. In this context, pCon.planner provides you with the **Group Objects function**.

Follow the steps below:

- **Click** the relevant **walls while pressing the Ctrl key** to select all walls that you want to group.

- **Click** the **Group tool** in the **Tools group on the** Edit tab.

- The walls are now connected to a group. **Editing functions** such as moving or rotation **now apply to the entire group**.

Object groups can be **dissolved via the "Ungroup" operation**. Select the group and click "Ungroup" in the Tool group on the Edit tab.

3.7.2 Doors, windows and wall openings

This chapter deals with **room elements** that **structure walls: doors, windows** (double windows), **glass panels** (glass fronts) and **wall openings.** By means of a building section (Figures 1 and 2) we will **explain** how to **insert such room elements**, how to **adjust their size and position**, and how to **assign specific opening properties**.

Step by step the two adjacent rooms in figures 1 and 2 will be fitted with a number of room items which will then be adjusted according to given instructions. Figure 1 shows the intended purposes of both rooms (office and hallway).
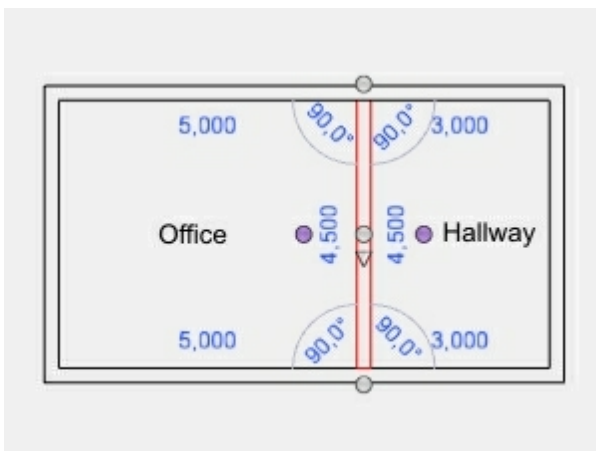

Figure 1

Figure 2

Contents

1. Insertion process
2. Modifying position and size
3. Opening options for doors and windows

3.7.2.1 Insertion process

The building section at hand is to be fitted with several room elements. **Four specific modifications** are to be carried out:

- **Insertion of a door** into the wall between office and hallway.
- **Insertion of three simple windows** into the right exterior wall.
- **Insertion of a glass panel** into the left exterior wall.
- **An opening** between the hallway and the adjacent building at the bottom wall.

Note

Doors, windows and openings can **only be inserted into existing walls**. A position outside of walls is not possible.

We recommend you to insert room elements in the top view and the Wireframe rendering mode. This gives you a good overview of the room and you can observe many object details.

There are **three steps** to the insertion process:

- Select **a room element** in the Room group on the Insert tab.
- **Move** the **mouse** pointer **to a wall** in the planning.
- **Click anywhere on** the **wall** to insert the object.

Step by step you can now **insert any number of room elements** following the method above. The result of this process can be seen two-dimensionally in Figure 1 and three-dimensionally in Figure 2.
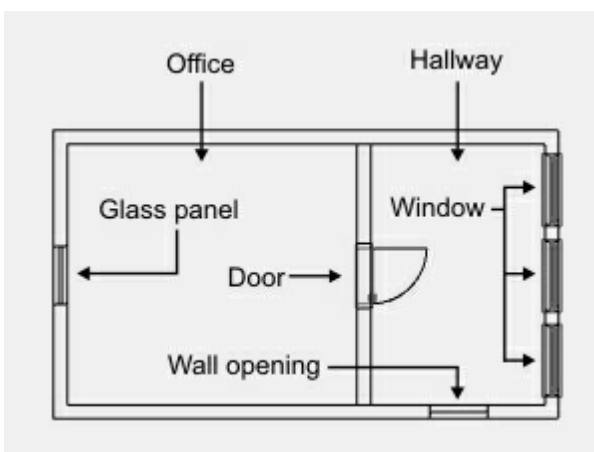

Figure 1

Figure 2

The **insertion of several items** of the **same type** can be achieved as follows:

Either:

- **Press and hold the Shift key when clicking the room element** in the selection on the Insert tab. Now **insert as many items** of this type (Step 3) as are needed. To **finish** the operation **press Esc** or click Cancel in the Context Menu to cancel the operation.

Or:

- **After Step 3 press F2** to insert another identical element. Press F2 again to repeat inserting.

Note

Next to the entry **"Glass panel" there is** the entry **"Glass front"** which is a **combination of several glass panels.**

After selecting the room element "Glass front" you **determine the starting and end point** of it **by mouse click**. The **distance** between both points will be **fitted automatically with the appropriate number of glass panels.**

3.7.2.2 Modifying position and size

The **height, width and position of room elements** (doors, windows, glass panels or openings) **can be changed**, and that both **manually and by entering values**. The adjustment of size and position will be demonstrated in the given example.

Contents

1. Modifying the size
    1. Manual modification
    2. Entering values
2. Modifying the position
    1. Manual modification
    2. Entering values

Modifying the size

The **size of doors, windows, glass panels and wall openings** can be **modified** by **entering values or manually** via certain **interactors.**

Manual modification

The **manual way** of modifying the size of room elements is carried out **via the interactors** as to be seen in **figures 1 and 2.**

Click the **relevant interactors for the height or width** and **drag them** until the object has the **desired size**. **Click again to finish** the operation.
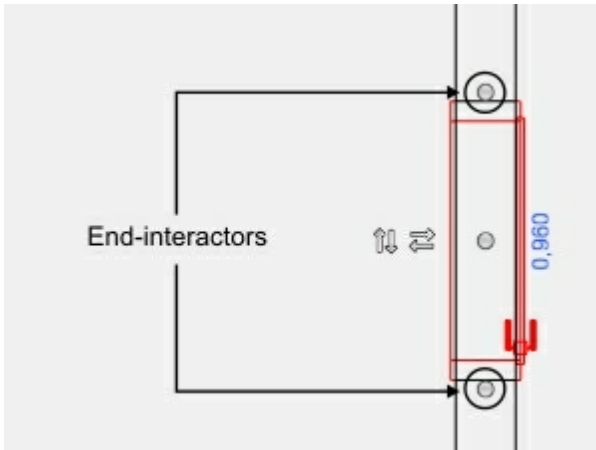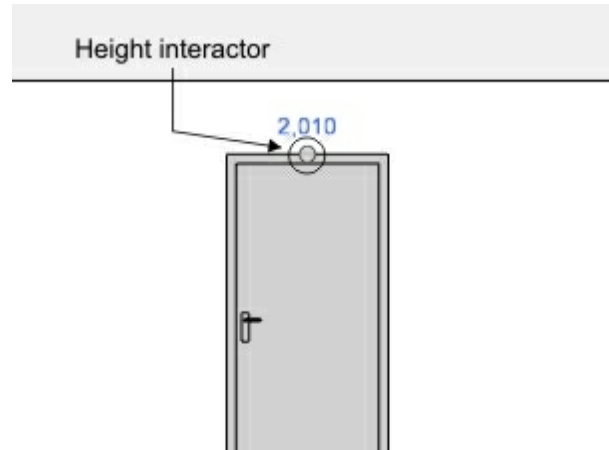
Figure 1

Figure 2

> **Note**
>
> Use the **buttons "Hide selection"** and **"Hide others"** on the Edit tab (Visibility group) to **temporarily hide concealing objects**.
>
> Not all camera perspectives allow you to modify widths or heights. Left, Right, Front and Rear camera views **only support height modifications**, while Top and Bottom views **only allow modifications of width**. Depending on the perspective**, three-dimensional views allow modifications of both.**

Modifying the size by entering values

The **other way** of manipulating height and width of objects is to **enter specific values**. In Figure 3 you can see one detail of the example room rotated left by 90°. When you select a room element, quite a few numbers appear (see Figure 3). Each number indicates a specific dimension of the selected object (see legend). **Always take good care as to what number to modify**. Figure 3 shows different dimensions that appear after selection of a door.

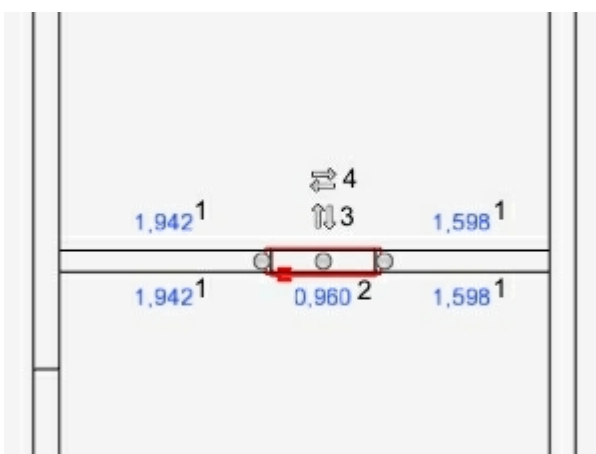**Figure 3**

Legend

1. Distance from outer edge of the door to the wall.

2. **Width of the door.**

3. Interactor: vertical opening properties.

4. Interactor: horizontal opening properties.

In order to modify the size, first **choose a suitable** camera perspective. Then **click the relevant number** and **enter the desired value**, then **click Enter**. In the example room, the

room elements are to be attributed with the following values:

- **Door:** height: 2.2 meters; width: 1.0 meters
- **Window:** height: 1.4 meters; width: 0.9 meters
- **Glass panel:** height: 2.5 meters; width: 4.5 meters
- **Opening:** height: 2.4 meters; width: 3.0 meters

The **resulting sizes** can be seen as two- and three-dimensional views in **Figure 4 and 5.**

Do not worry about the position of some of the room elements just yet. So far no specific instructions have been given. The next two paragraphs will continue with this.
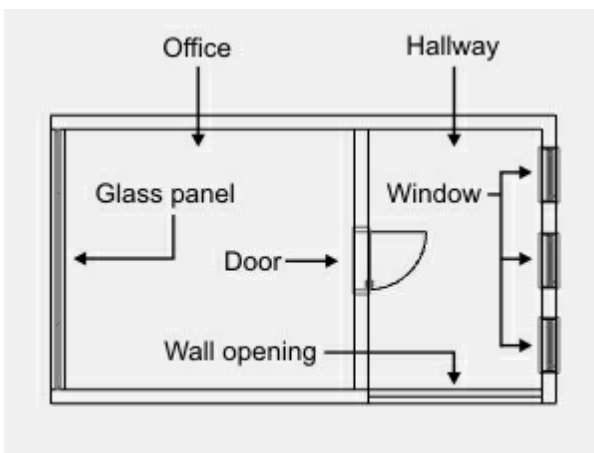
Figure 4
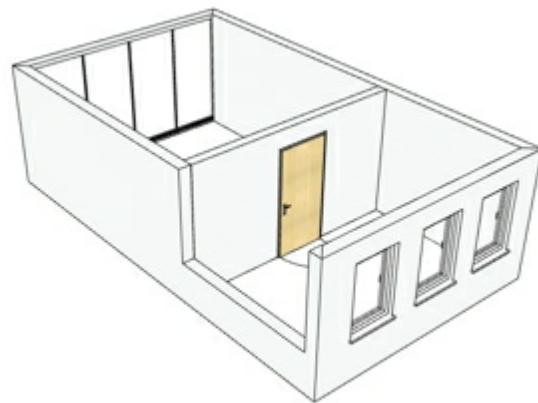
Figure 5

Modifying the position

The position of room elements can be modified either manually or by value entry. The following two articles explain both options.

Manual modification

Doors, windows and wall openings can be **moved manually** by **clicking and dragging them** to a new position. **Click** on surfaces, edges, snap points **(Figure 6), or mid-interactors (Figure 7).**

- **Select** an **object.**
- **Click** the **surface, edge or mid-interactor** of the object. This starts the Move mode.
- **Move** the **mouse** pointer to move the object.
- **Click** the **desired position to finish** the move operation.
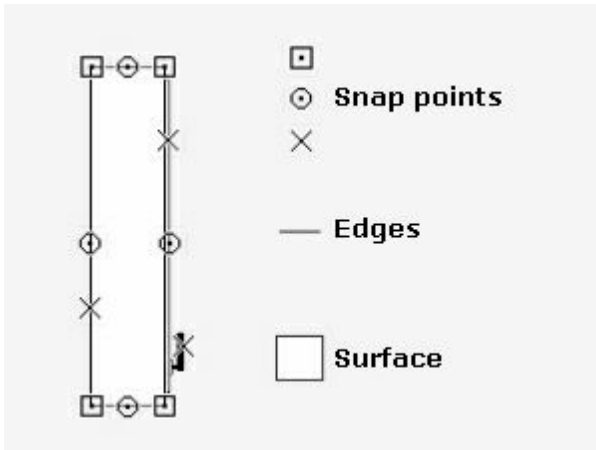
Figure 6
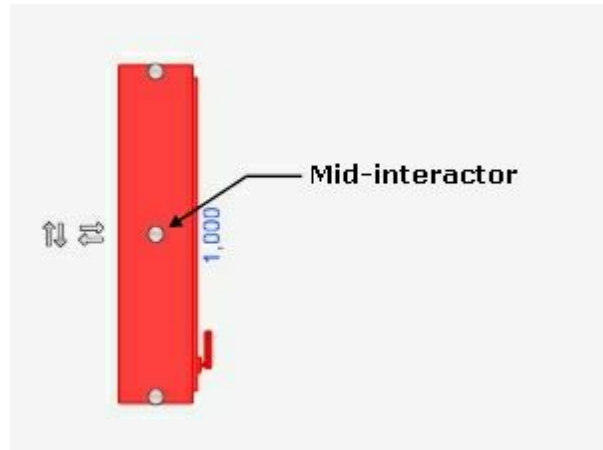
Figure 7

> **Note**
>
> 1. **Room elements** are **always bound to** an existing **wall**. During a moving operation they can be moved across the room (except when you use the mid-interactor), but it **snaps to the nearest wall** as soon as you click to finish the moving operation.
>
> 2. **During** a **moving operation you can deactivate axis and/or object snap** via the Context Menu **or** keyboard shortcuts**.**
>
> 3. Figure 6 only shows a random selection of snap points for simplification.

Modifying the position by entering values

Room elements can be **repositioned by entering specific values and measurements**. Figures 8 and 9 demonstrate which values you can change (in this case a window).

Figure 8

Figure 9

As you can see from the window example, the current distance to the floor is 0.8 meters (Figure 8). The distances to the left and right window are not identical (Figure 9). As already

mentioned in the paragraph on the change of size, the view of certain values and the possibility to change them is dependent on the camera angle.

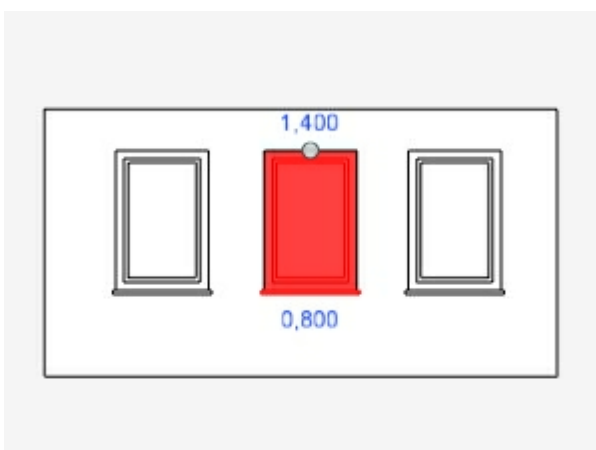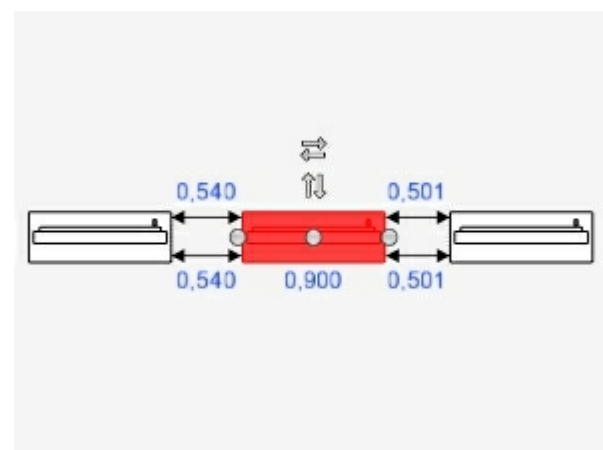In order to **move objects**, first **select the desired element. Click** the **distance measure** you want to change. **Enter the value** and **press Enter**. Of course you can also **work with measurements and operators**.

Next, the room elements in the example are to be positioned as follows:

- **Door:** distance to the floor: 0 m; distance to the walls (left and right): 1.75 m

- **Window:** distance to the floor: 0.9 m; distance to walls/windows: 0.45 m

- **Glass panel:** distance to floor: 0.05 m; distance to walls: 0 m

- **Opening**: distance to floor: 0 m; distance to walls (left and right): 0 m

Figure 10

If you have repositioned all room elements in the example your room should look similar to the one in Figure 10.

3.7.2.3   Opening options for doors and windows

The way **doors and windows open both vertically and horizontally** can be **determined via two interactors**. These are highlighted in **Figure 1.**
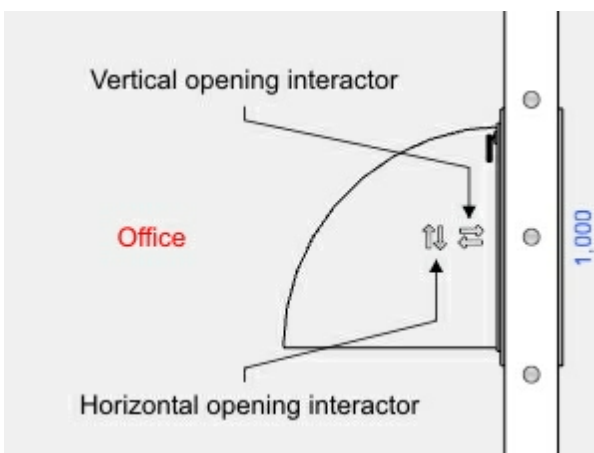
Figure 1

The **vertical opening interactor** determines whether the **window swings in or out**.

In Figure 1, for example, the window is set to swing inwards into the office.

The **horizontal opening interactor** determines, whether the room element is **hinged on the right or left side.**

Looking from inside the office, the door in Figure 1 is hinged on the right and therefore opened on the left.

These **opening properties** of a door or window **can be easily changed**. Simply **click** the

relevant interactor (double arrow). When the **mouse pointer moves over an arrow, it is highlighted** to indicate activation.
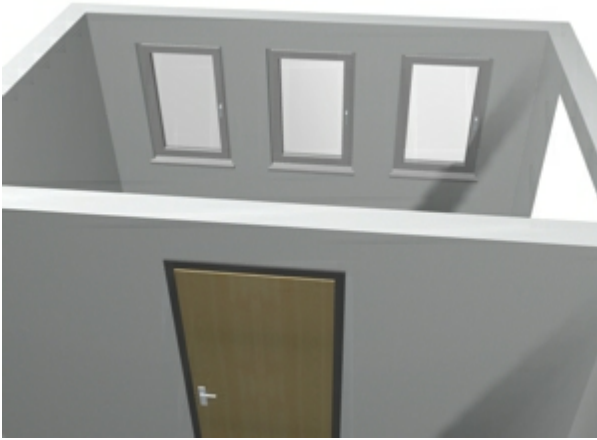
Figure 2

Next, the windows and doors in the example room are to be adjusted according to the following specifications:

- **Door:** vertically: from the hallway to the office; horizontally: door handle on the left when seen from the office

- **Window:** vertically: from outside to the hallway; horizontally: window handle on the right when seen from the hallway.

Figure 2 complies to these specifications..

3.7.2.4 Round wall openings and niches

The possibility to round off wall openings or turn an opening into a niche opens up a great range of new planning variations.

The basis of both is a standard opening in the wall. You find the room element "Opening" in the Room group on the Home tab and the Insert tab.

Contents

1. Properties dialog and selection of openings
2. Round openings
3. Niches
4. Combination of round opening and niche

Properties dialog and selection of openings

Figure 1

Figure 1 illustrates how you can **select an opening** in all rendering modes. In this example shows the Realistic mode. **First** select the **wall** that features the opening and **then** select the **opening itself**. Then **click "Properties"** in the **Edit group** on the Home tab.
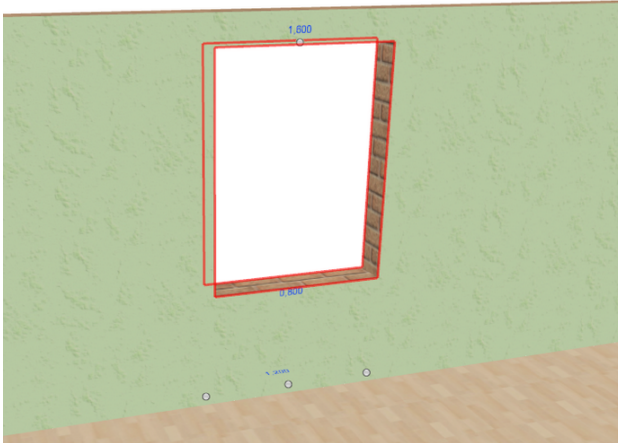

Figure 2

Figure 2 shows the Properties dialog box for the opening of figure 1. This dialog displays from top to bottom:

- the **name** of the **layer** the opening is assigned to,

- the **position** of the opening **on** the **X, Y and Z axis**, which allow you to move the opening within the wall,

- the **Arch Rise** and the **Center Offset**, which are needed to round off the opening or to turn it into a niche.

Round openings
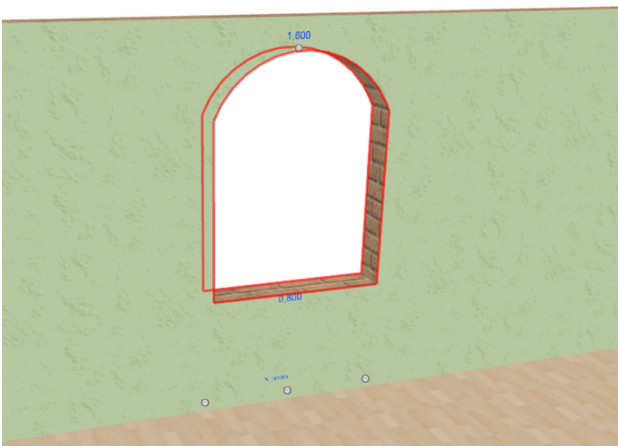
Figure 3

To **round off** an opening you just **enter a value** for the **"Arch Rise"** in the Properties dialog. The **minimum** value is **0.000** m for a **rectangular opening**. The **maximum** value is **half the width** of the opening. In the case the arch of the opening is a **semi circle**.

Figure 3 illustrates a round opening with a width of 0.8000 m and an arch rise of 0.3000 m (half the width).

The **arch** can be **modified** at any time. You just need to **enter another value** or 0.000 to remove it completely.

Niches
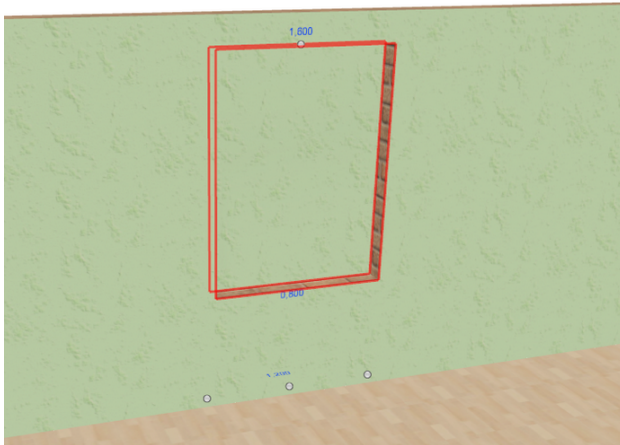
Figure 4

To **create a niche** you need to **enter a value** for the "Center Offset" in the Properties dialog. If you **enter 0.100 m**, the **wall behind** the **niche** will be **0.100 m** deep. Theoretically the Center Offset cannot be bigger than the depth of the wall.

If you enter a **positive value**, the **niche** is **on** the **inner side** of the wall. **Negative values** produce a **niche on** the **outside** of the wall.

Figure 4 shows a niche with a Center Offset of 0.001 m.

The **niche** can be **removed or modified** at any time by **entering another value** or 0.000 m.

Combination of round opening and niche
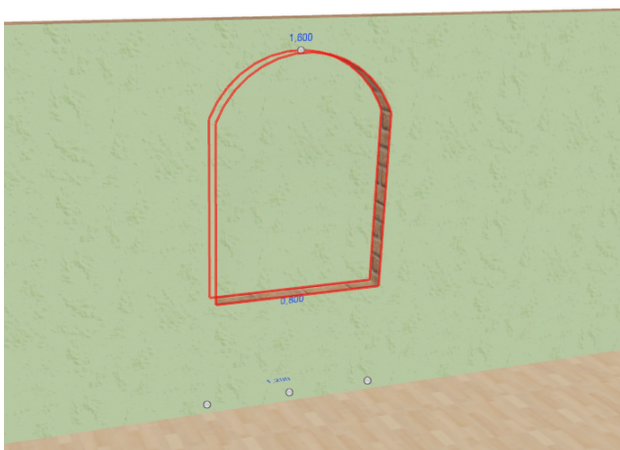
Figure 5

Round openings and niches can of course be **combined**. A sensible variation of niches and openings with and without arch will make your drawing **more interesting** and allows you to design even rooms for example in the **Mediterranean style**.

Figure 5 illustrates the combination of the arch of figure 3 and the niche of figure 4.

You can now very easily **place objects**, e. g. shelves, vases, candles or accessories **into** a **niche or opening** (Figure 6).

Figure 6

3.7.3 Floors

After completing a room you can **add a floor**. Click **"Floor"** in the **Room group on the** <u>Insert tab</u>. Then **move the mouse** pointer to **the room** you want to fit with a floor.

If the room is suitable for adding a floor, the room appears encircled by a red line (Figure 1). **Click to insert** the floor. Figure 2 shows what a finished room may look like.

Figure 1
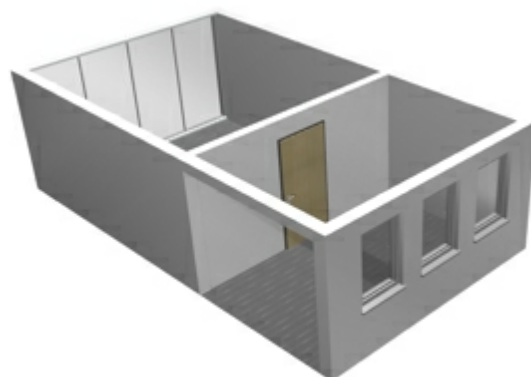
Figure 2

3.7.4 Objects

In this chapter you learn how to **insert objects of different file formats**. The **most important** sources for objects are the **pCon.catalog-Client** and the **3D-Gallery**.

Contents

1. pCon.catalog-Client
2. 3D Warehouse
3. Importing file formats
4. Inserting pictures
5. Inserting texts and annotations

3.7.4.1 pCon.catalog client

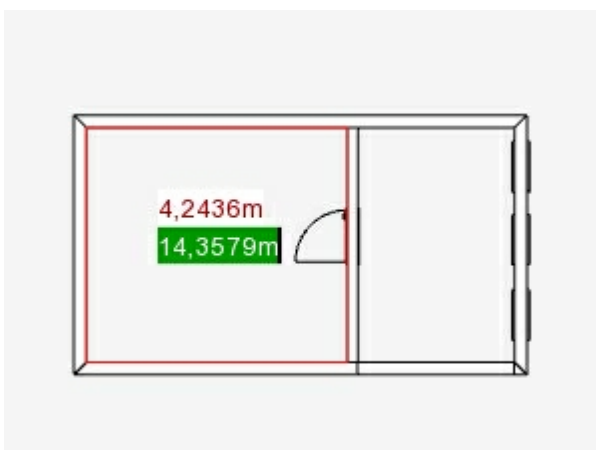Via a **click** on the **pCon.catalog button** (Home tab, Insert group or Insert tab, Objects group) you open the pCon.catalog client.

The **pCon.catalog client** provides **access** to **all available online catalogs** and their **room and furnishing objects** which you can **download** - for example as DWG file - **into your planning.**

In the online catalogs that are accessible in pCon.catalog you will find:

- **Furniture** for private and work environments, such as tables, chairs, shelves, partition walls or shutters
- **Materials** that can be assigned to the surface of the objects, such as woods, plastics, stone materials, metals, fabrics or wallpapers
- **Accessories** for offices and private environments, such as mirrors, plants, flipcharts, books or dishes
- **Illumination** devices such as ceiling lamps, floor lamps or desk lamps
- **Technical devices** such as computers, hifi-equipment, TV sets or household appliances.

Contents

pCon.catalog homepage

Click the **Catalog button** to **open** the **Online-Catalog client**. There you can **search** the appropriate **objects** via the search function. Furthermore, you find at the start page a **list of** the **latest catalogs** as well as selected products.

The **top menu** of the pCon.catalog window provides the following functions:

- **"Catalogs"**: **see all** available **catalogs** and **download** products and materials to pCon. planner
- **"About":** detailed **introduction** of pCon.catalog
- **"Try now":** create an own **free test catalog**
- **"Login": login** to your **test catalog**

Services, such as **Social Bookmarks** (at the bottom of the window) allow you to easily **share** pCon.catalog **with others.**
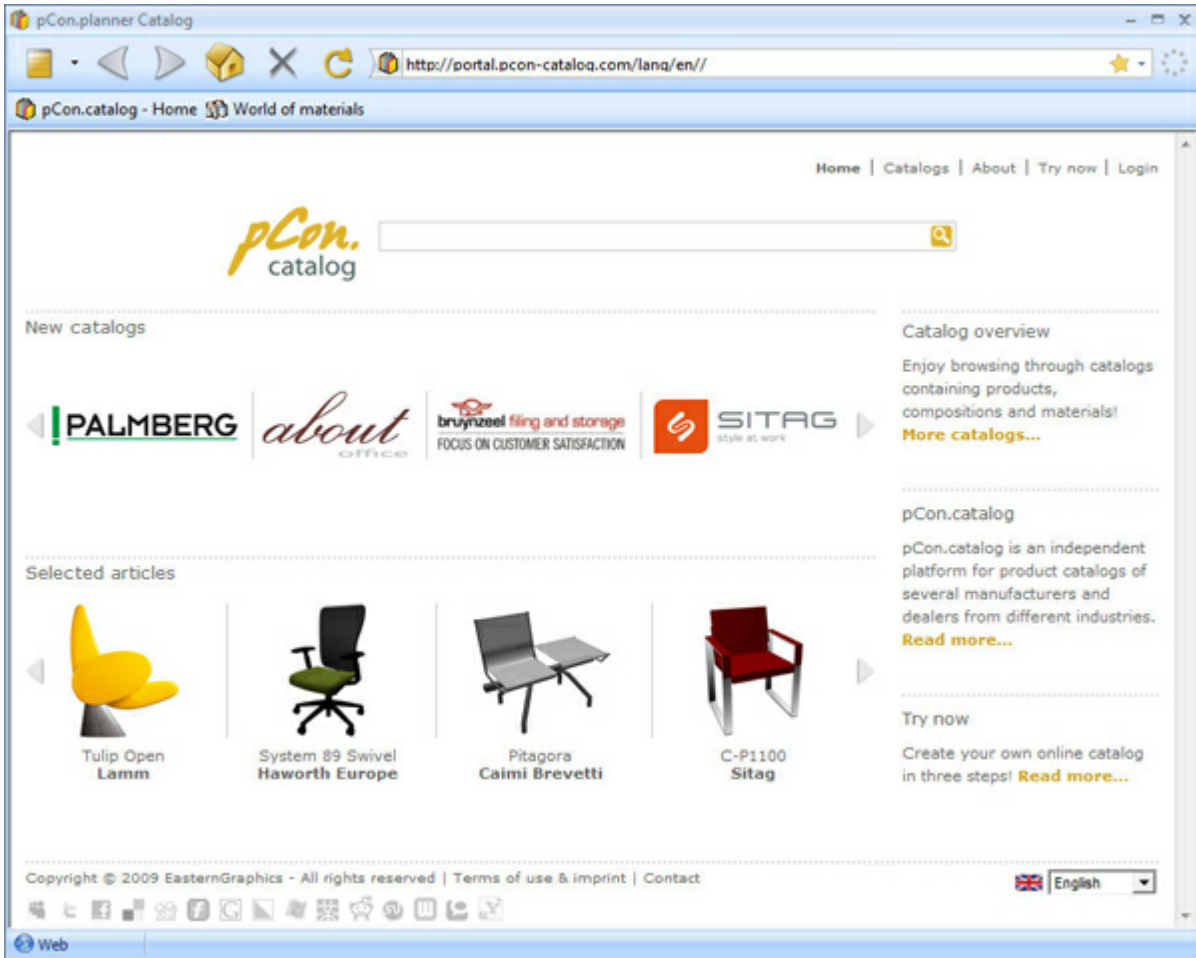
Figure 1

Navigation

Figure 2 illustrates **the different features of the navigation** in the pCon.catalog client. Some elements will be explained in detail further down in the chapter.
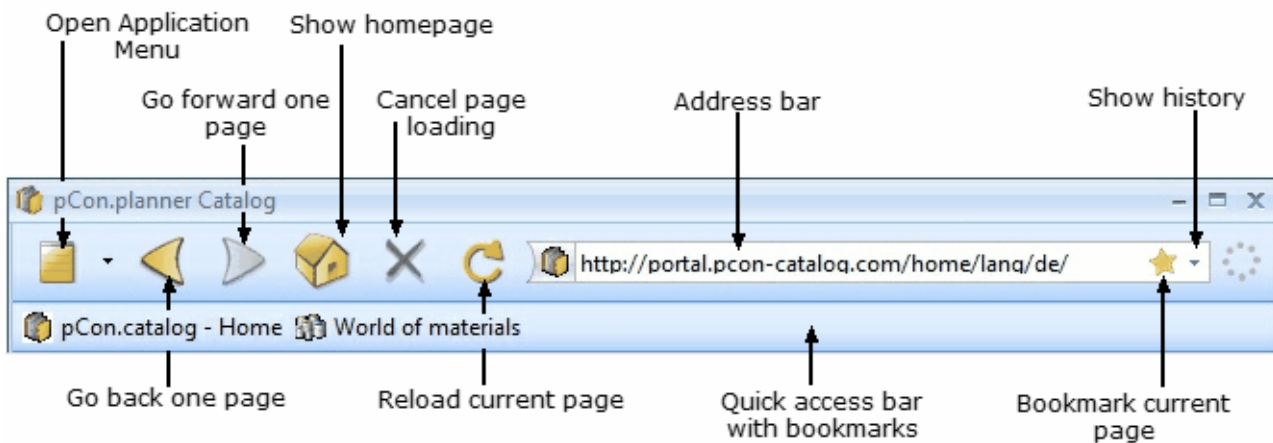
Figure 2

Application menu
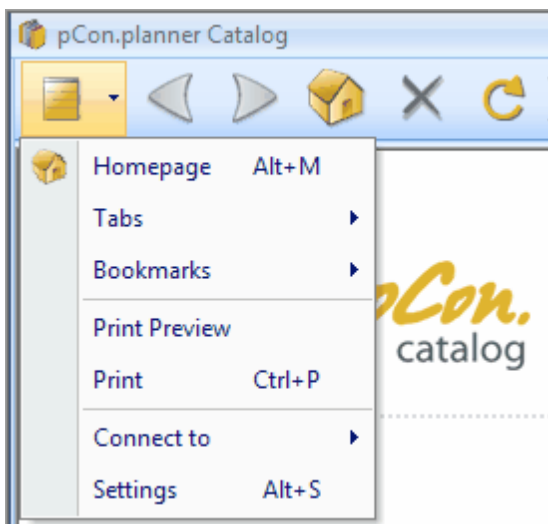
Figure 3

Via the Application menu of the pCon.catalog client you can **adjust the program functions to your needs.**

There you find:

- a **link** that **opens the start page** of the client.

- the **possibility to create and close tabs** to which you can assign certain contents (pages) and switch between them.

- the **Bookmark Manager**. This feature helps you save, organize and your individual bookmarks and to open a bookmarked page. Read more in article on bookmarks.

- the **Print preview** of the current catalog page and the possibility to print the current catalog page.

- the **Settings dialog box**. Here you can change the settings that concern the contents and privacy.

Tab bar

The tab bar (figure 4) allows you to **open several pages** of the catalog in **parallel** within the pCon.catalog window. **Each page** is loaded in a **separate tab**. If only one catalog page is loaded the tab bar is not visible. It you add **a new tab** via the menu entry **"Add tab sheet" or Ctrl + T**, the tab bar appears.

Via the tab bar you can **add** new tab sheets, **close** a tab sheet and **activate** selected **tabs**.
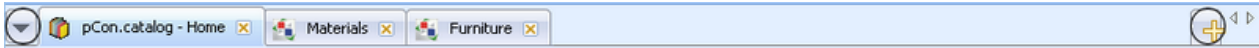
Figure 4

If you want to **open** a **link** from the **address bar in a tab**, **click and hold** the **small icon** (Fav-icon) right **left to** the **address bar** and **drag** the link **onto** a **tab** or onto an empty space on the tab bar (drag & drop) to load the page there.

The same applies to the bookmarks in the Quick Access Toolbar. A click with the middle mouse button onto a bookmark open it in a new tab.

Note

In the **Content tab** of the **Settings dialog (figure 3)** you can specify whether every catalog is opened in a new tab sheet and of the tab bar is always displayed (no matter if you use one or more tabs - figure 8)

Address bar

The Address bar is used to enter the URLs of the catalogs (figure 5).

Figure 5

The **address history** displays the **catalog pages** you have **already visited** (figure 6). The **auto completion** of you entry helps you to find pages that you have already visited again quickly. Click the **small arrow** right to the address bar to drop down the history.
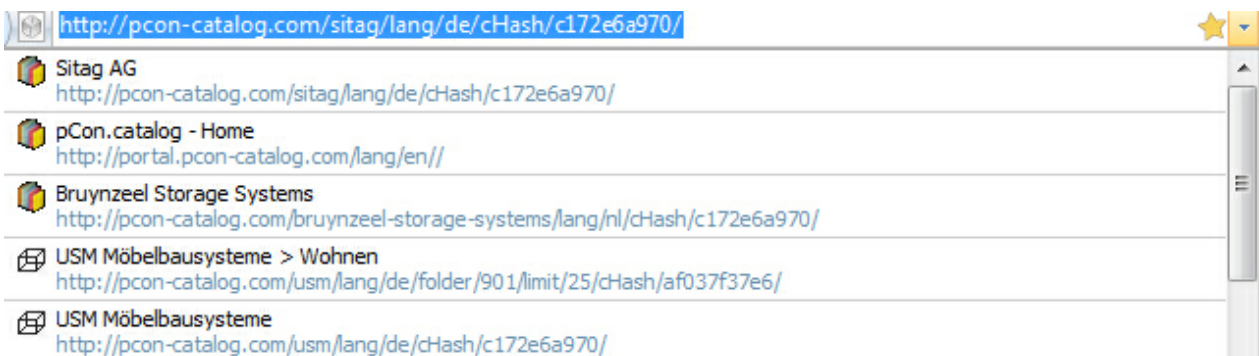
Figure 6

Bookmarks

Bookmarks are used to **faster access pages that are often needed**. You probably know the bookmarks concept from your Internet-Browser.

In the pCon.catalog client you can open the pages that you often use via bookmark.

Create bookmarks

If you want to create a **bookmark of the current page, click the "Star" button** in the upper right corner of the pCon.catalog client (Figure 2).

Insert a name for the bookmarked page and **decide about its location.** You can **either** position it in the **Quick Access Toolbar (Figure 2) or** in the **"local bookmarks" folder.**

Manage bookmarks
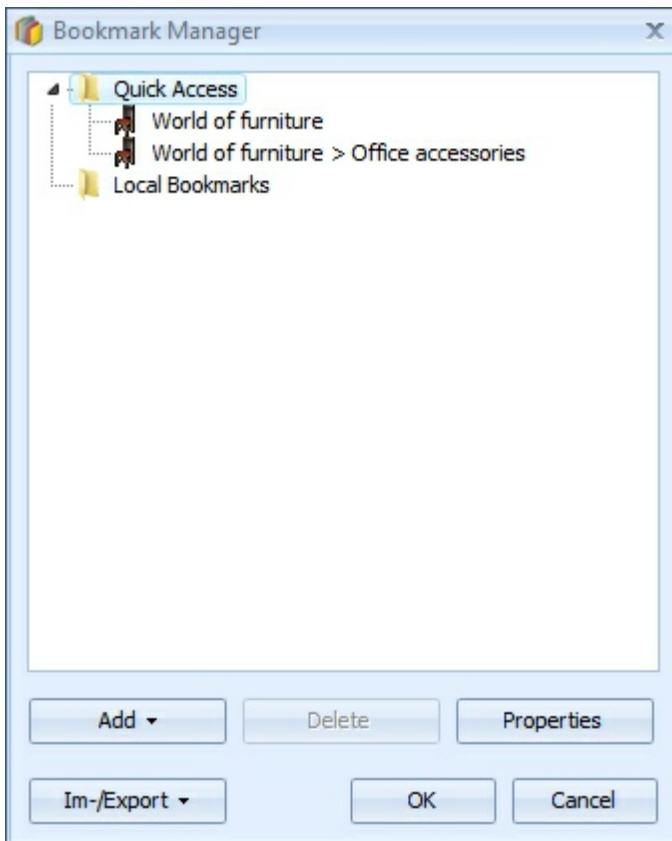
Figure 7

The Bookmark Manager allows you to manage your bookmarks. You can access this dialog by:

- pressing Alt + C

or via:

- Application menu / Manage bookmarks (Figure 7).

On the **left side** of the dialog you find the **main categories "Quick Access Toolbar" and "Local bookmarks"** as well as **their substructure.**

When you **select a folder** (Figure 4) its **content is displayed** on the **right side** of the dialog.

You have the following options:

- **Delete:** delete a selected bookmark
- **Properties:** modify the title and the address of the bookmark
- **Add:** add a bookmark, a folder or a parting line in the Bookmark Manager. A parting line improves the visual overview. With folders you can assign your bookmarks to individual categories. To shift a bookmark into a folder or before/after another bookmark left-click the bookmark and drag it to its new position.
- **Import/Export:** this feature is explained in the <u>article below</u>.

You can also use the **Quick Access Toolbar** to **edit** your **bookmarks**. **Right-click** the bookmark to **open the Context Menu**. This menu allows you to

- **open** the bookmark (in a new tab sheet)
- **edit** the properties of the bookmark
- **delete** the bookmark.

To shift the bookmark to another position just move the bookmark to its new position via drag & drop.

> **Note**
>
> The two directories "Quick access toolbar" and "Local bookmarks" are **main categories**. Thus you **cannot create new folders** neither **above** them **nor at the same level**.

Import / export bookmarks

The Bookmark Manager allows you to **export** your **bookmarks** and to **import** them **in** a **pCon.planner 6 on another system** or **in pCon.catalog in AutoCAD**. Click "Import / Export" in the Bookmark Manager (Figure 7).

Use bookmarks

To **access** a **bookmarked page open** the **Application Menu** (Application menu / Bookmarks / Local bookmarks or Quick Access Toolbar) **or use the Quick Access Toolbar** (if the Toolbar is not displayed, click Application menu / Bookmarks / Show Quick Access Toolbar).

Then **click onto the desired bookmark**.

Settings dialog box

The Settings Dialog Box consists of two tabs: **"Content" and "Privacy"** as shown on figures 8 and 9.
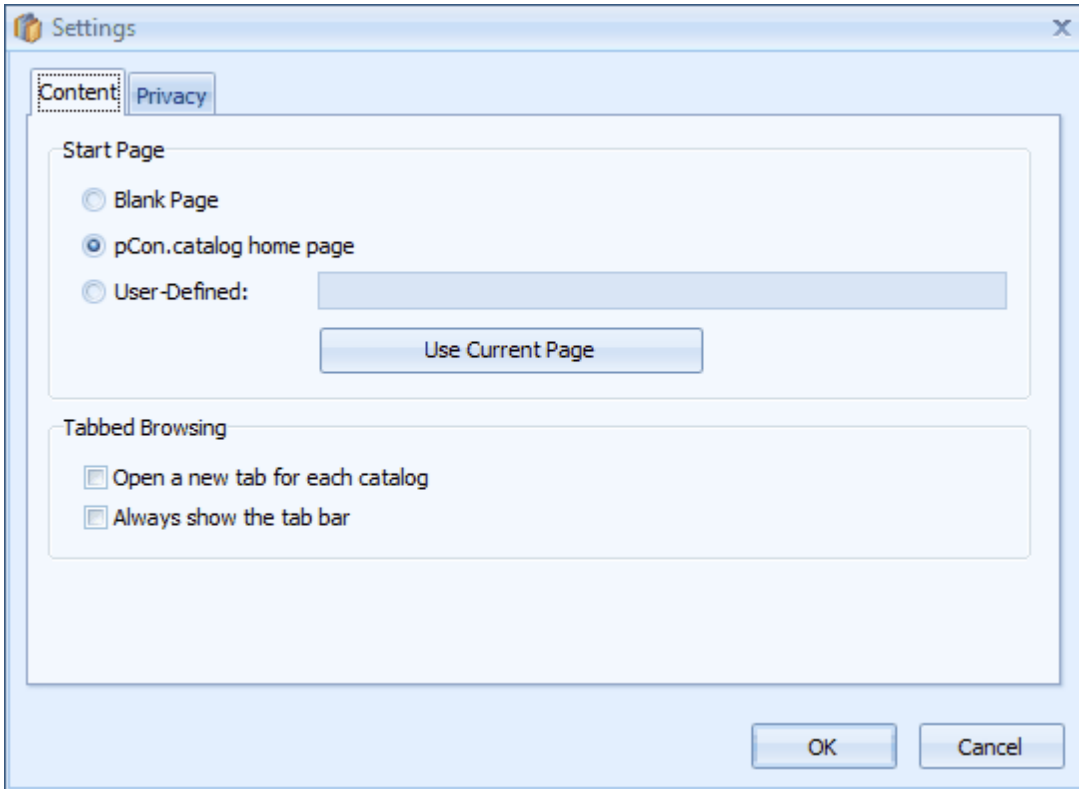
Figure 8
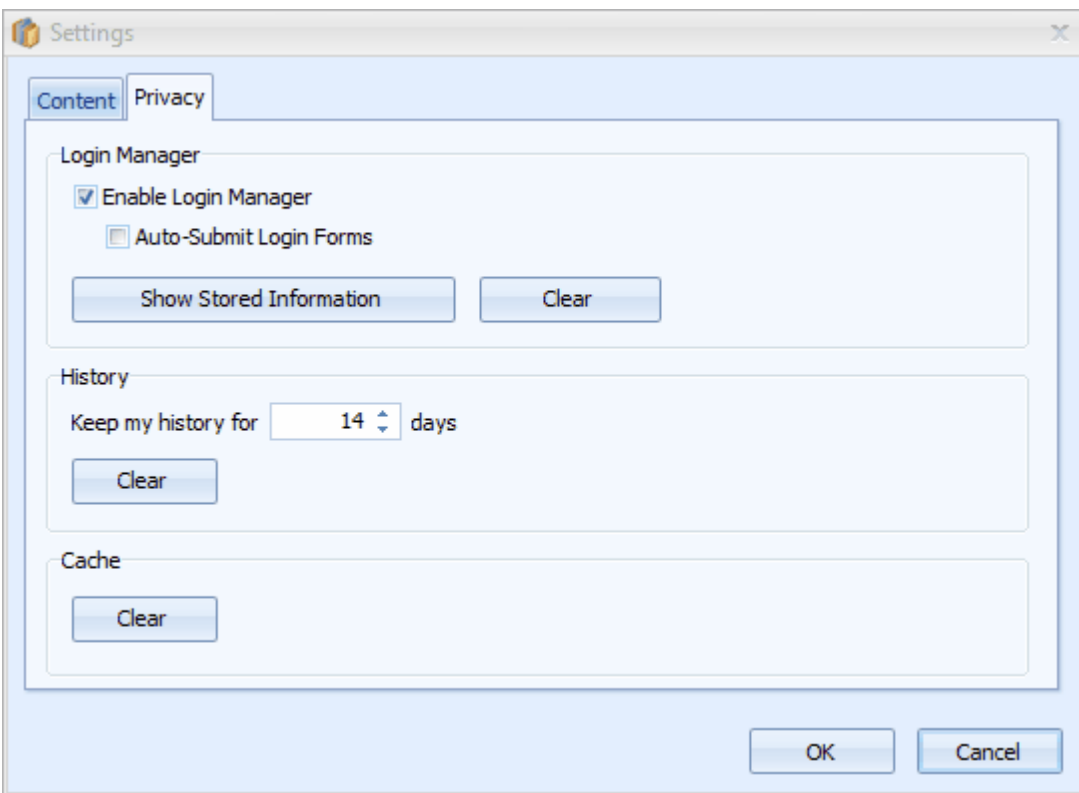
Figure 9

Content and Privacy

Click the **Content tab** of the Settings dialog box to make the following settings:

- **define** the **start page** of the pCon.catalog client,
- determine whether **every catalog** is to be opened **in a new tab sheet**
- determine whether the **tab bar** is to be **displayed** even **when** you are working with **only one tab.**

The Privacy tab allows you to **change** the **settings** of the **Login Manager,** the **History Manager** and the **options** to **clear the cache.** You can:

- **save login data** for a password protected catalog and determine whether you want to be logged in with these data automatically.
- **clear the history** of visited catalogs and define for how many days the history is to be kept.

The cache contains information on the objects you have already downloaded and is useful when you often load the same objects into your planning. The process of loading the objects is much faster.

Login-Manager

The pCon.catalog client gives you **access not only to free but also to password protected catalogs.** To **open** such a **catalog** you need to **register with your user name and password.** Only then you can use the objects of this catalog.

The pCon.catalog client offers a **Login Manager** that saves the user access data and provides them on demand during the login.

The Login Manager is **enabled by default** (Figure 9)**.** Further to this option **you can enable** the entry **"Automatic login"** which makes it **unnecessary** for you **to confirm your password and user name** each time you open protected catalogs.

Downloading objects

The Online-Catalog client provides **access to a great variety of online catalogs**. They contain **2D and 3D objects** provided by various manufacturers and dealers. The objects are available for free download (please see above).

The process of downloading and inserting objects into a planning is explained with the example from the previous chapter.
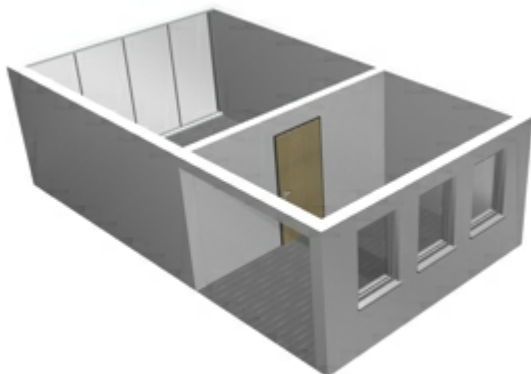
Figure 10

Step by step the rooms on figure 6 are to be equipped with the following items from the "World of Furniture" catalog:

- desk
- chair
- office cupboard
- floor lamp
- plant

To **insert the items** above carry out the **following instructions**:

- **Click the Catalog button** (Insert group on Home tab or Symbol group on Insert tab) to **open the home page** of the online catalog client.
- **Click** "World of Furniture"**.**
- First **click** the **"Office elements" folder**, which contains subfolders with chairs and desks.
- **Click** the **subfolder "Tables/linked tables"** and choose a table for the office.
- **Click the desired table** to start the download.
- The object is now attached to your mouse pointer. **Click at the desired position** in the office to **place the desk there**.
- Click the Catalog button again to download more objects. Navigate to the relevant folders.

Figure 11 shows a **room with all above mentioned objects**. After you have inserted elements from the online catalogs, **they can be edited and** <u>aligned</u>. Figure 12 shows the rearranged furnishings in the example office.

Figure 11

Figure 12

> **Note**
>
> You may find **a great variety of materials / textures** for the object surfaces in the catalog <u>"World of Materials"</u>**.**

Behaviour of the pCon.catalog window
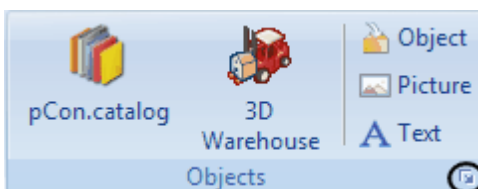
Figure 13

After inserting an object from the pCon.catalog into your planning the **pCon.catalog window pops up again**.

If you don't wish that you can open the object settings in the Objects group on the Insert tab (encircled arrow on figure 13) and **disable the option "Reopen catalog window after insert operation"**. The catalog window will now close after inserting an object.

3.7.4.2   3D Warehouse

Click the **3D Warehouse button** on the <u>Home tab</u> **or** <u>Insert tab</u> to **open a web application -** quite similar to a browser **-** that gives you **access to** the **contents** of the <u>Google 3D Warehouse</u>**.**

There you can **search for objects and download them** right into your planning in pCon. planner 6.

The data of the Google 3D Warehouse are **primarily SKP files.** These files can be downloaded from the **versions 5 - 7 of the 3D Warehouse.**

Figure 1

3.7.4.3 Importing object files

The **Objects button** in the **Objects group** (Insert tab) **or** the **Import command** in the Application Menu allow you to **import** a variety of **different file formats** into pCon.planner 6.

Contents

1. Possible file formats
2. Importing objects
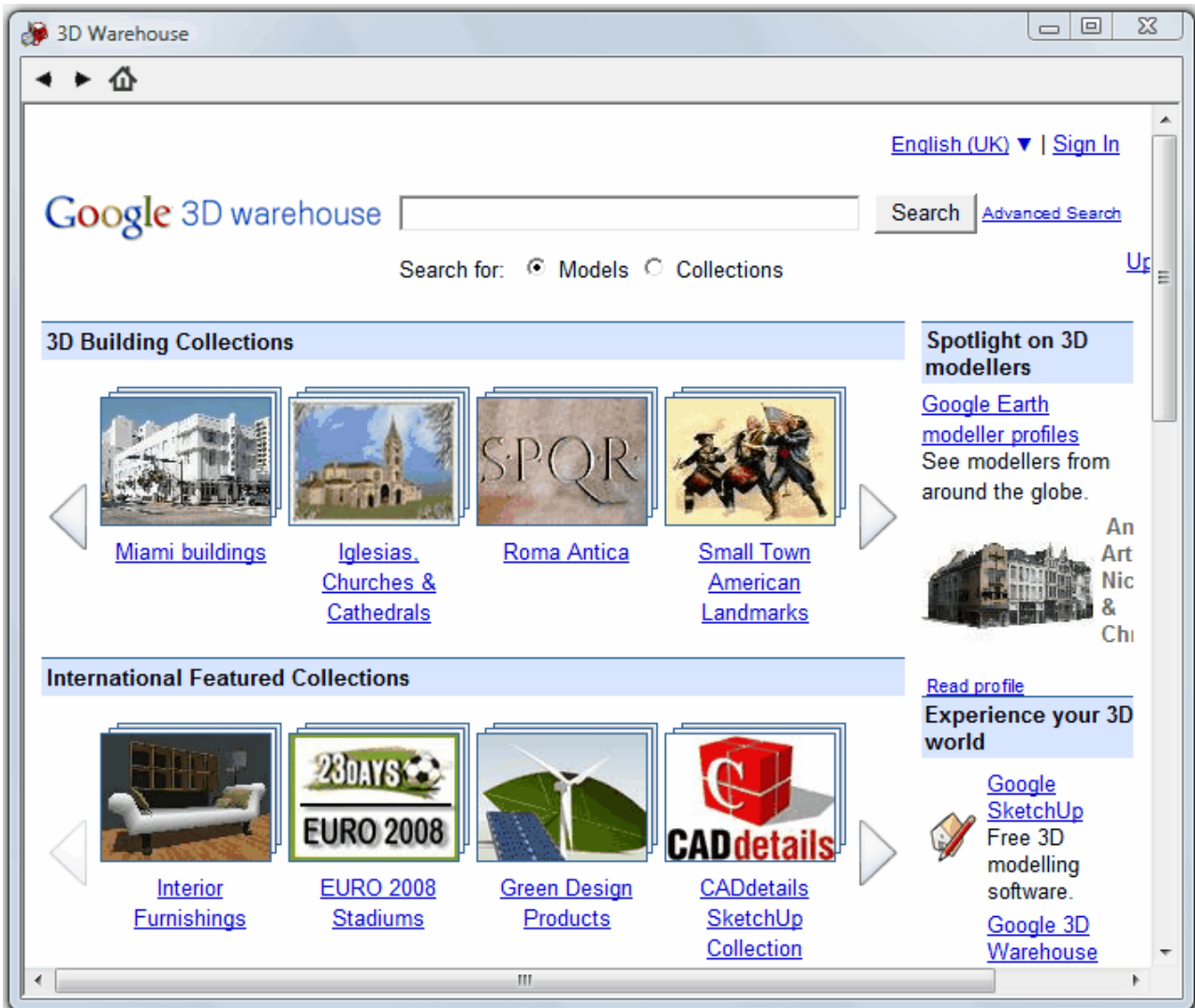3. Importing objects on invisible layers

Possible file formats

The following file formats can be imported in pCon.planner:

- **DWG**: pCon.planner 6 can read this format in all its versions and allows to write in the file versions R15-R17. We strongly recommend to safe DWG data in the latest version of the format.
- **DXF**: DXF is another format for planning data, along with DWG. pCon.planner 6 can read and write this format.
- **SAT/SAB:** ACIS SAT files are used in CAD systems such as SolidWorks, Solid Edge or Unigraphics/NX. You can load these data with pCon.planner.
- **3DS**: 3DS is an older but still very widespread **exchange format for 3D applications**. It can very easily be inserted in pCon.planner 6 planning files.
- **SKP**: Via the 3D Warehouse button (Objects group, Insert tab) you can insert SKP files from the **Google 3D Warehouse** right into pCon.planner 6. Read more here.
- **FML**: FML is a format for **geometric object data**. It has been made well-known by the predecessor versions of pCon.planner 6 and can easily be processed.
- **ENV**: **ENV** is just like FML a format by EasternGraphics. It comprises space **planning data** such as **walls, windows, light sources and so on**.
- **OBK**: **OBK is the primary file format of the order tool pCon.basket**. It comprises the FML format, which is loaded into your planning when importing OBK data.
- **OGRP**: An OFML group may contain single data as well as grouped object data. It is usually exported from **pCon.planner 5 and pCon.configurator 5** and can be loaded in pCon. planner 6.

Further to the file formats described above you can **import the picture formats JPG, BMP, TIF, GIF, PNG and TGA.** Please go to chapter "Inserting pictures" to get more information.

Importing objects

To import one of these file types just follow these steps:

1. **Click** the **Objects button** in the **Objects group on the** Insert tab or the Import command in the Application Menu. The **file dialog box opens.**
2. In the dialog box **select a file** and **click "Open".** The file is now imported into pCon.planner 6.
3. If in the file you want to import the **scaling unit** is **not defined**, the **dialog** as to be seen on figure 1 pops up. Now you need to **define the scaling unit yourself**, before the geometry can be imported in pCon.planner.

   The scale dialog helps you in the following ways: The upper part of the dialog displays the dimensions of the geometry, below you are recommended a scaling unit (in this example it is Inch). The dimensions that result from this scaling unit are given in the lower part of the dialog.

   If you require another scaling unit just make your selection in the box. Furthermore, you can scale free-hand by entering a value for the "Width", "Height" and "Depth".
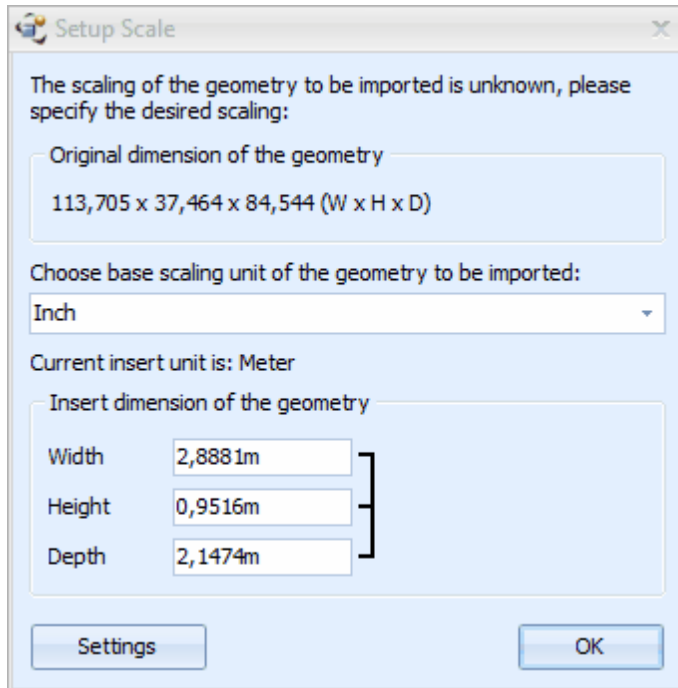
Figure 1

Importing objects on invisible layers

If you try to **import** an **object** that is **located on** an **invisible** layer (which you have hidden in a prior step) you will be shown an **additional dialog** during the importing process. The following example illustrates such a situation:

You have created room as to be seen on figure 2. The room is located on the layers 72_EGR_ROOM5_D2_WALL, 72_EGR_ROOM5_D3_WALL and 72_EGR_ROOM5_D3_FLOOR. Now you save the drawing as a DWG file.

Figure 2

Figure 3

Now **hide all layers** that belong to the **room** (Figure 3). The room is **no longer visible**.

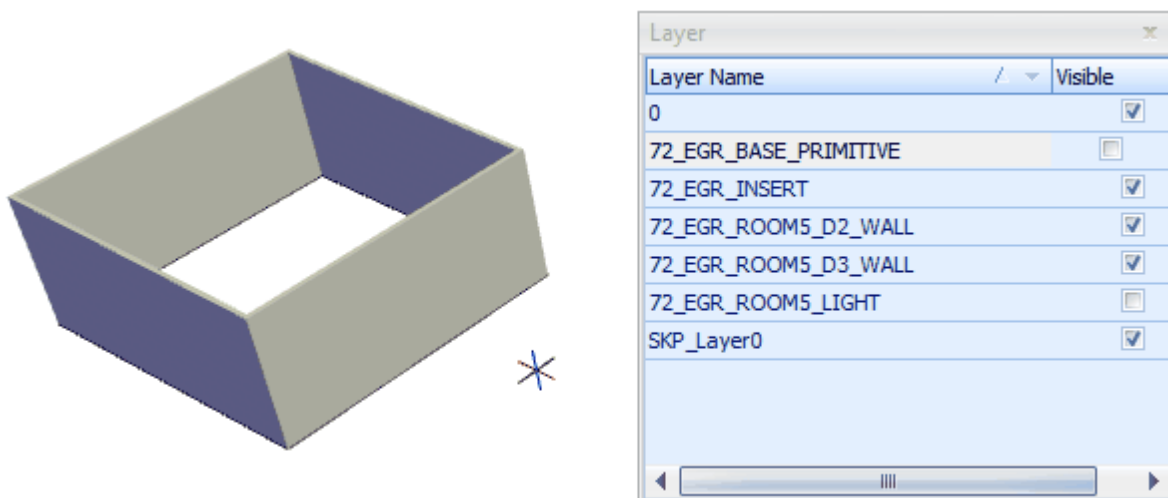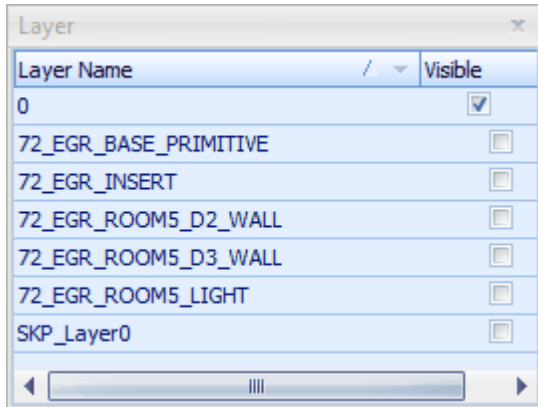If you **now import** the **room** that you have previously saved via the Objects button (Insert tab, Objects group) or via the Import command in the Application Menu, the **dialog** of **figure 4 appears.**

Click "**Yes**" to **unhide** the **layers**. The **room** is now **imported.**

If you click "**No**" the **import is canceled.**

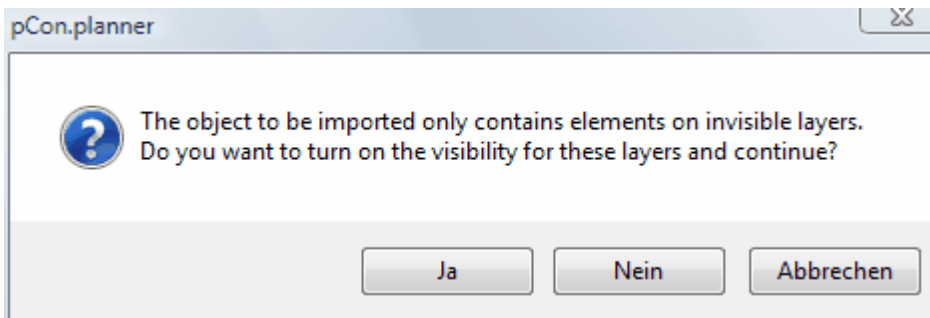After the import you can hide the layers again.

Figure 4

3.7.4.4   Inserting pictures

pCon.planner 6 allows you to import picture files of the formats **JPG**, **BMP**, **TIF**, **GIF**, **PNG** and **TGA** into your planning.

The following example explains the insertion process:

1. First **switch to** one of the isometric camera views or the perspective view. Then **click** the **"Picture" button** in the **objects group of the Insert tab** or in the Insert group of the Home tab.

2. In the **dialog select a picture file** and press "Open".

3. **Click** the viewport to **set the origin** of the picture. **Move the mouse** away from that point to **open the picture**(Figure 1).

4. **Alternatively** you can type in precise values in the fields right next to the mouse pointer.

5. The **upper value** is the **offset value** which indicates the current **distance between the wall and the picture** (Figure 1). You ought to **define a minimum distance** (e.g. 1 cm) to **prevent the flickering effects** that occur whenever two objects (e.g. a picture and the inside of a wall) are located on one and the same layer.

6. **Click again** to finish the insertion process or press Enter to confirm the values.

Origin of the picture   Flickering effect   Mouse pointer   Offset value
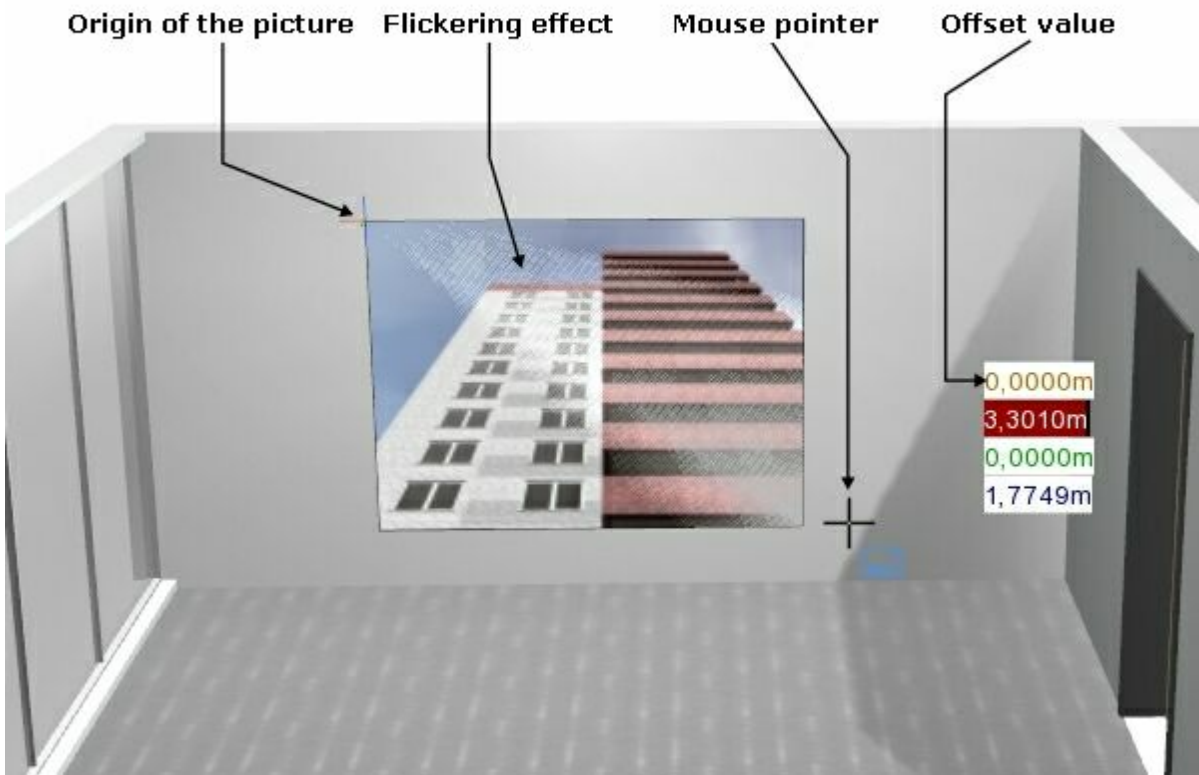
0,0000m
3,3010m
0,0000m
1,7749m

Figure 1

3.7.4.5 Inserting texts and annotations

pCon.planner 6 allows you to **insert texts and annotations** into your planning. The **difference** between both is that **annotations display an arrow, whereas texts don't.**
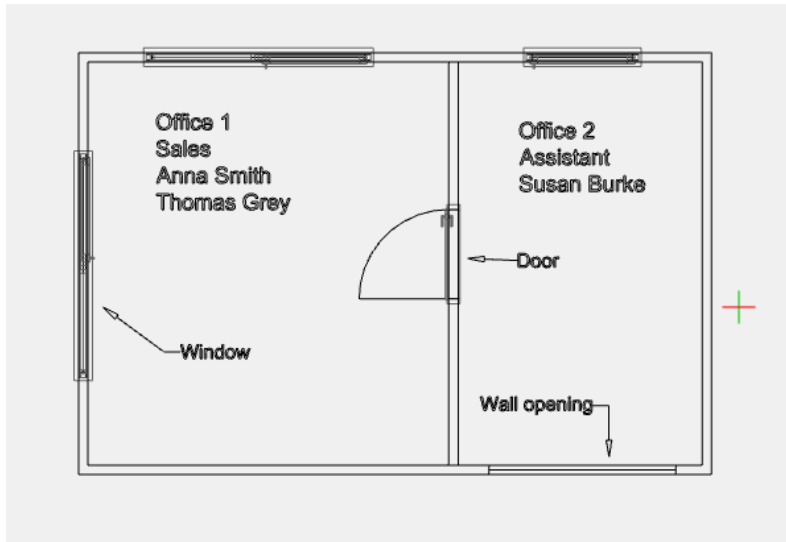
Figure 1

Both tools are shown in figure 1.

In the example we have entered

- the texts "Office 1, Sales, Anna Smith, Thomas Grey" and "Office 2, Assistant, Susan Burke"

as well as

- the annotations "Window", "Wall opening" and "Door".

Text

To insert texts follow these steps:

1. **Click** the **Text button** in the **Objects group** on the <u>Insert tab</u>. The text dialog opens.
2. **Define** the **fond** and the **text height**.
3. **Enter** a **text**. Press Enter to insert line breaks.
4. **Click OK** to finish.
5. The text is now **attached to the cursor** and can be **placed anywhere** in the planning by **mouse click.**

To **edit a text** just <u>select</u> it and **click** the **Pencil icon** next to the text. The text editor re-opens and you can make the modifications. Alternatively you can press "Enter" or "Edit text" in the <u>Context Menu</u> (opens on right-click).

In order to **position** a **text** in the drawing just **modify** the **values** in the **input fields** right next to the cursor. The upper value determines the distance of the text to the closest object, e.g. a wall. To prevent flickering it is recommendable to always enter a small offset, e. g. 1 cm.

> **Note**
>
> 1. Entering an **offset value** for texts is generally **possible** in all <u>camera views</u>. In <u>2D views</u> though, the **values refer to** the **spatial relation** of the texts **to coordinate axes** and not to another object.
>
> 2. **Flickering effects** may occur when **two objects** - e.g. a text and the inside of a wall - are **on one** and the same <u>layer</u> (figure 2).

Annotations

To insert annotations just follow these steps:

1. Click the **Annotations Icon** in the **Drawing Elements group on the** <u>Insert tab</u>**.** (The tooltip says: Insert a text box which refers, with the help of an arrow, to the desired point of the drawing). A text dialog opens.

2. **Define** the **fond** and the **text height**.

3. **Enter** a **text**. Press Enter to insert line breaks.

4. Click **OK** to **finish text entry**.

6. The annotation text is now **attached to the cursor** and can be **placed anywhere** in the planning **by** mouse **click**.

7. Then **move** the **mouse to the object** the text refers to **and click** there. The **arrow is now displayed**. The arrow can consists of several parts. The drawing process is then finished via the Context Menu entry "Finish" or the ESC key.

To **edit a text** just <u>select</u> it and **click** the **Pencil icon** next to the text. The text editor re-opens and you can make the modifications. Alternatively you can press "Enter" or "Edit text" in the <u>Context Menu</u> (opens on right-click).

In order to **position** a **text** in the drawing just **modify** the **values** in the **input fields** right next to the cursor. The upper value determines the distance of the text to the closest object, e.g. a wall. To prevent flickering it is recommendable to always enter a small offset, e. g. 1 cm.

Note

1. The **arrow** of an annotation is always **connected to** the **text** of the annotation. That means that **moving** the **text** also **moves** the **arrow**.

2. Die **Eingabe eines Abstandswertes** bei Anmerkungen ist **grundsätzlich in allen** <u>Kameraansichten</u> **möglich**, jedoch beziehen sich die eingegebenen Werte bei <u>2D-Einstellungen</u> auf die Position der Koordinatenachsen und nicht auf ein anderes Objekt.
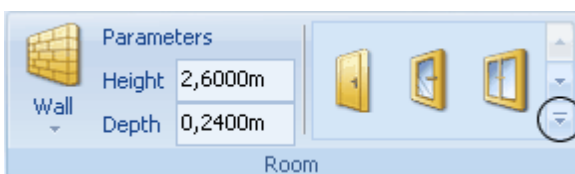

3.7.5 Illumination

Figure 1

pCon.planner provides you with **different light sources for illuminating your room and furnishing elements**. To **insert light sources**, or to display existing ones in the planning, **click the down arrow next to the room elements** on the <u>Home tab</u> or the <u>Insert tab</u>. In Figure 1 this arrow is encircled.

You can choose between **spotlight, point light and directional light**.

Contents

3.7.5.1   Spotlight

Spot light projects a **cone of light** onto your planning. This cone of light can be **configured in regard to the** angle of beam, **the** range, color, direction, intensity **and** shadow.

The application and properties of spot light will be discussed as follows.

Application of spotlight

The **application** of spot light is **versatile**. You can **illuminate entire designs**, but you can also **simulate the light of a single floor or desk lamp.**

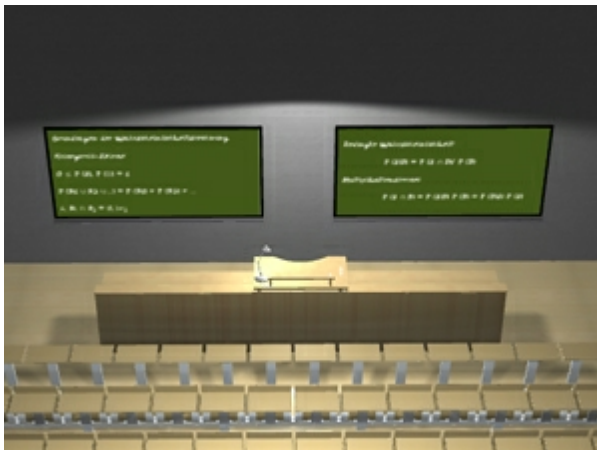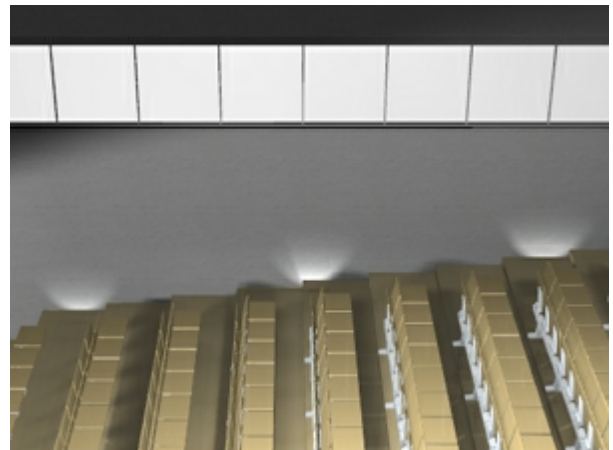Figures 1 and 2 show different options for applying spotlight.

Figure 1
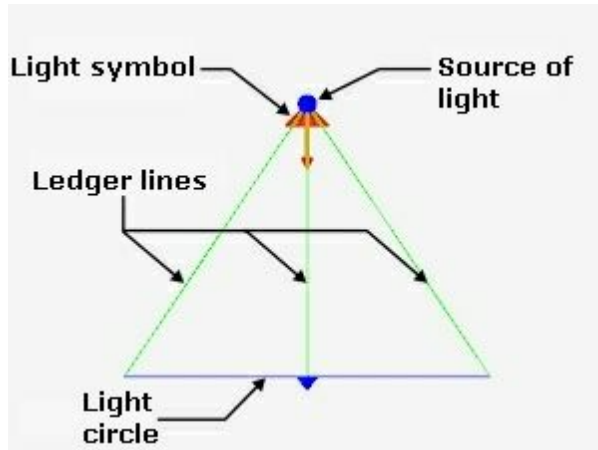

Figure 2

To insert spot lights follow these instructions:

Figure 3

1. Click the **down arrow next to the room items on** the Home tab **or** the Insert tab. (see here)

2. In the **lighting category click "Spot light". Click** inside the viewport to position the source of the spot light.

3. **Now move the mouse pointer** to **determine the target that you want to illuminate** and fix it by a mouse click. The point that you click is the **center of the light circle** projected by the spotlight.

Spotlight properties

Spot light features some properties which you can **edit with the mouse and/or in the** Properties dialog box**.**

Position

To **change the position** of a directional light use one of the **three options** describes below:

Option 1:

The position of the spotlight can be changed by the **entry of the coordinates for x, y and z** (red, green and blue axis) in the Properties dialog box. These coordinates refer to the **source of the light** (Figure 3).

Option 2:

Another possibility to modify the position of the spotlight is to **move the ledger lines**. They run from the source of the light to the light circle and visualize the cone of light (please see dihedral angle). When you **move the cursor over the lines** they are displayed in **light green** . Now you can **select a line and move it.** Another click fixes the new position of the light.

Figure 4 displays the spot light with its ledger lines in a lateral view, figure 5 in the top view.
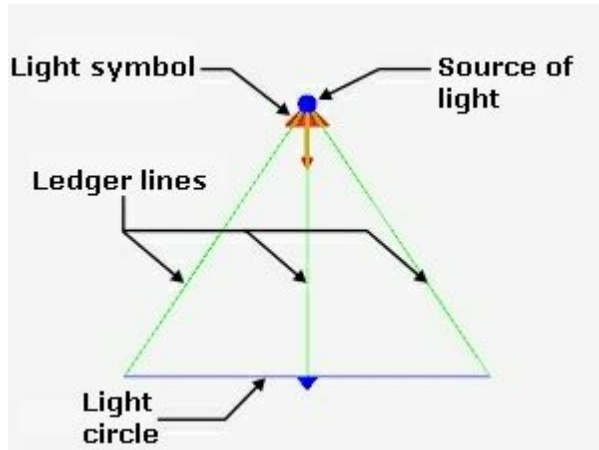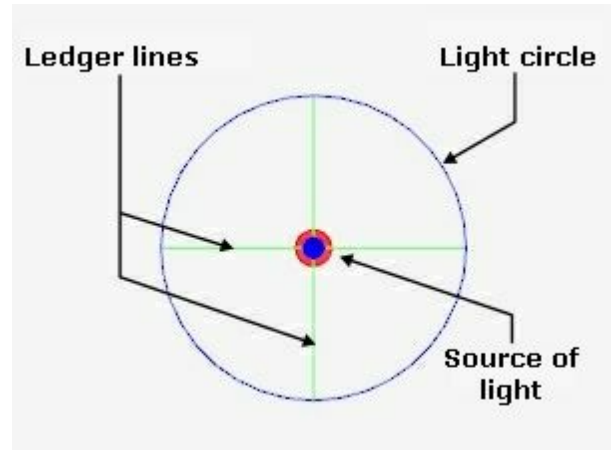
Figure 4

Figure 5

Option 3:

The **third option** is to move the **light symbol** (Figure 4). **Click the symbol, move it** to its new position and **click again** to fix it.

Direction

Every spot light **radiates into a certain direction**. When you **select a spotlight** with your mouse, the **middle ledger line** indicates the **direction** (see Figure 4). **Two interactors** allow you to **change the direction**.

- The first interactor is the **source interactor**. It is located at the source of the light and is highlighted in light green on figure 6.

- The other interactor is the **target interactor** which is located at the end of the middle ledger line (highlighted in light green on figure 7).
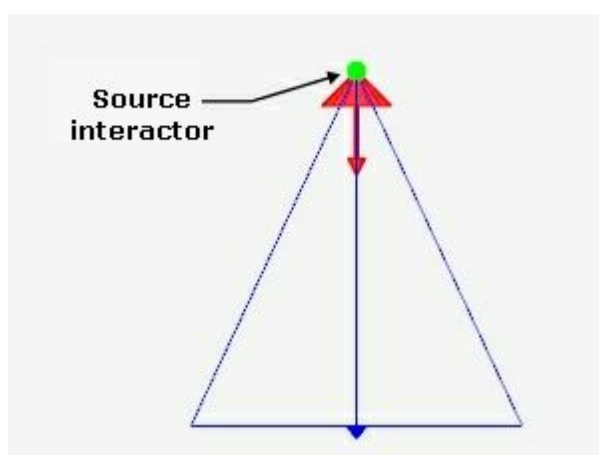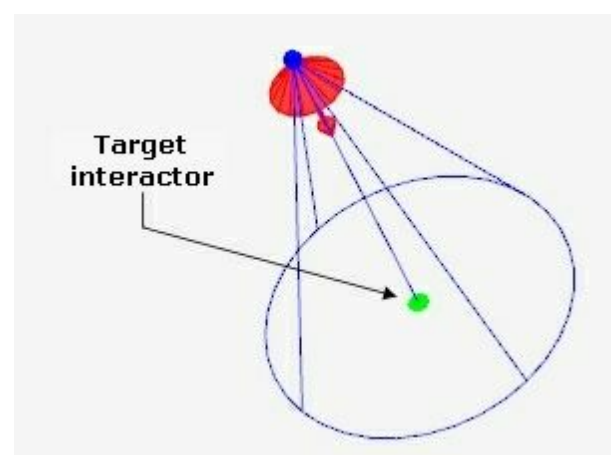

Figure 6

Figure 7

To change the direction of the spotlight follow the steps below:

1. Move the mouse pointer **onto one** of the **interactor**s. The interactor will **change to light**

green.

2. **Click and move the interactor**.

3. **Click again** to **confirm** the new direction of the light.

Dihedral angle

The **dihedral angle** specifies the **size of the cone of light**. It can range from **1° to 170°**. You can set the angle either in the   **or** you can use the **light circle** described above.
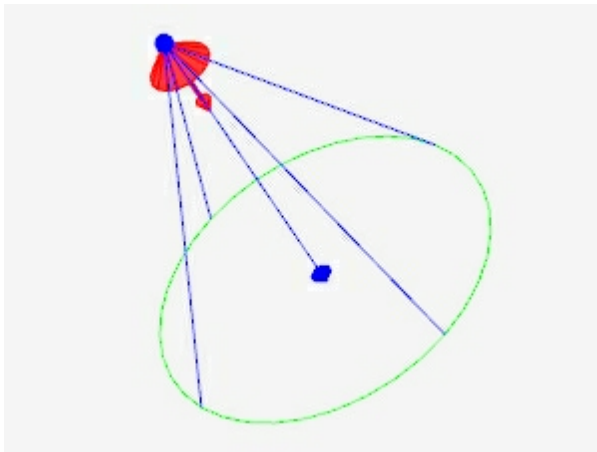

1. **Move** the **mouse over** the **light circle** (Figure 8). The circle will be displayed in **light green.**

2. Now **click the circle** and **move the mouse** to **modify** its **diameter**.

3. **Click again** to **confirm** the new dihedral angle.

Figure 8

Range and intensity

The range specifies the **distance which the beam illuminates**. It is specified in **meters** and can be changed in the Properties dialog box**.**

The **intensity** of the cone of light **directly depends on the range**. The **intensity at the source of the spotlight** can be specified in the Properties dialog box and ranges from **0 (no light) to 1 (full intensity)**. It is highest right at the light source and **decreases with growing distance**. At the end of the distance it is 0.
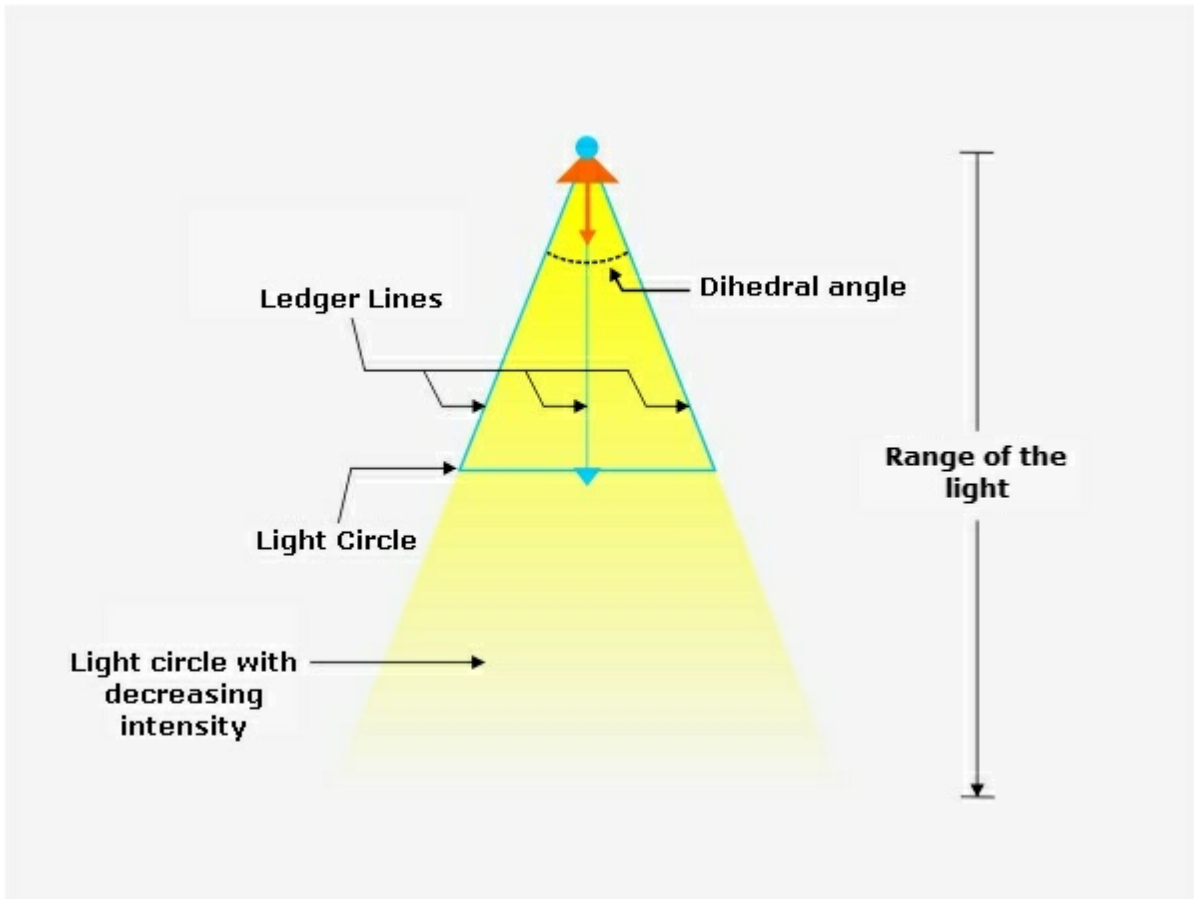
Figure 9

> **Note**
>
> As you can see in figure 9 the **range and the length of the ledger lines** are **not related to each other.**

Color

The color of the spot light can be determined in the Properties dialog box. The **default color** is **white.**

Shadow

pCon.planner can **calculate shadows**. To apply shadows, **"Shadow"** has to be checked in the Properties dialog box.

Shadow is **only displayed** in the perspective camera view. The other views do not support shadows.

> **Note**
>
> The **shadows** of manually applied spotlights are **disabled by default**. Check "Shadows" in the properties dialog box to display the shadows.

Switch spotlight on and off

The spotlights can be switched on and off via the Properties dialog box, as well. Check the entry "Light Source" to switch it on and uncheck it to switch the spotlight off.

Display / hide spotlight elements

You can **display or hide the spotlight symbol**. Simply **click** the **arrow next to** the **Layer symbol** on the Edit group (Home tab) to open the Layer control dialog. Then **check / uncheck "Show lighting"**. **All light symbols** (not only the spotlight) will be **displayed / hidden.**

Whether you show or hide the lighting symbol has **NO effect on the illumination of your planning**.

3.7.5.2   Directional light

A directional light source projects **parallel light beams** onto your planning. It can be **configured in** direction**,** intensity**,** shadow and color**.**

The application of directional light and its properties are discussed as follows.

Application of directional light

Directional light applies **consistent light to the entire planning**. The parallel character of the light makes it very **similar to sunlight**.

Figures 1 and 2 show two examples of how directional light was used for illumination.

Figure 1

Figure 2

In order to apply directional light to your planning **follow the steps below**:

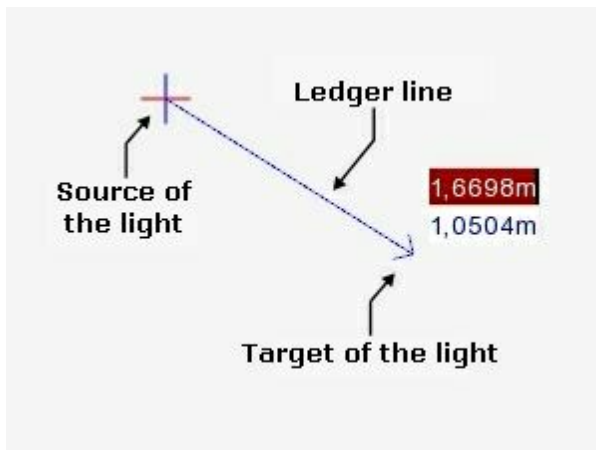**Figure 3**

1. **Click** the **down arrow** next to the room items on the Home tab **or** the Insert tab (see here).

2. In the lighting category **click "Directional light"**.

3. **Click** inside the viewport to **position the light source.**

4. **Now click the target** (see figure 3) to determine the **direction of the beam of light**.

Directional light properties

Directional light features some properties which you can **edit with the mouse and/or in the Properties dialog box.**

Position

Option 1:

The position of the directional light can be changed by the **entry of the coordinates for x, y and z** (red, green and blue axis) in the Properties dialog box. These coordinates refer to the **source of the light** (Figure 3).

Option 2:

Another possibility to modify the position of the directional light is to **move the ledger line**.

Directional light has one ledger line that runs connects the source and the target of the directional light. When you **move the cursor over the line** it is displayed in **light green**. Now you can **select the line** and **move it.** Another click fixes the new position of the light.

Figure 3 displays the directional light with its ledger line.

Option 3:

The **third option** is to move the **light symbol** (Figure 4). **Click the symbol, move it** to its new position and **click again** to fix it.

Direction

The directional light features **two interactors** that are used to **change the direction of the beam of light**.

- The first interactor is the **source interactor**. It is located at the source of the light and is highlighted in light green on figure 6.

- The other interactor is the **target interactor** which is located at the end of the middle ledger line (highlighted in light green on figure 7).
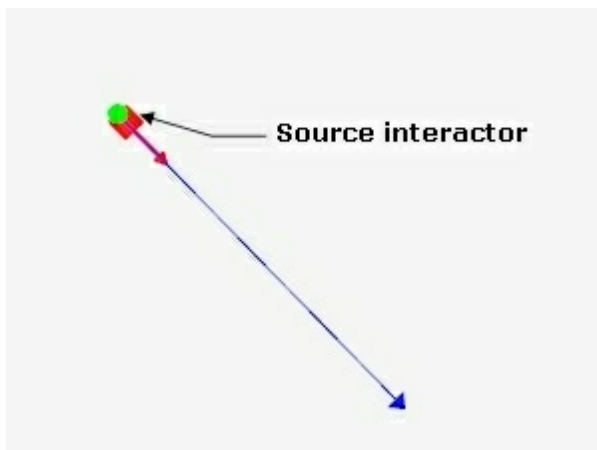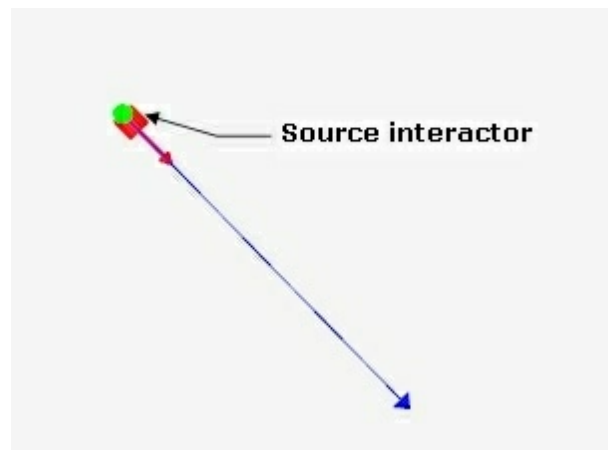

Figure 4

Figure 5

To **change the direction** of the directional light follow the steps below:

1. **Move the mouse** pointer **onto one** of the **interactor**s. The interactor will **change to light green.**
2. **Click and move the interactor**.
3. **Click again** when the **arrow points into** the desired **direction.**

Since the directional light is quite similar to sunlight, it does not only radiate from its source but it emits parallel beams of light.

In contrast to <u>spotlight</u> and <u>point light</u>, the **light source does not actually emit the light**; therefore it is not dark behind it. The light source **simply indicates the direction of the light beams**. This specific characteristic is visualized in Figure 6.
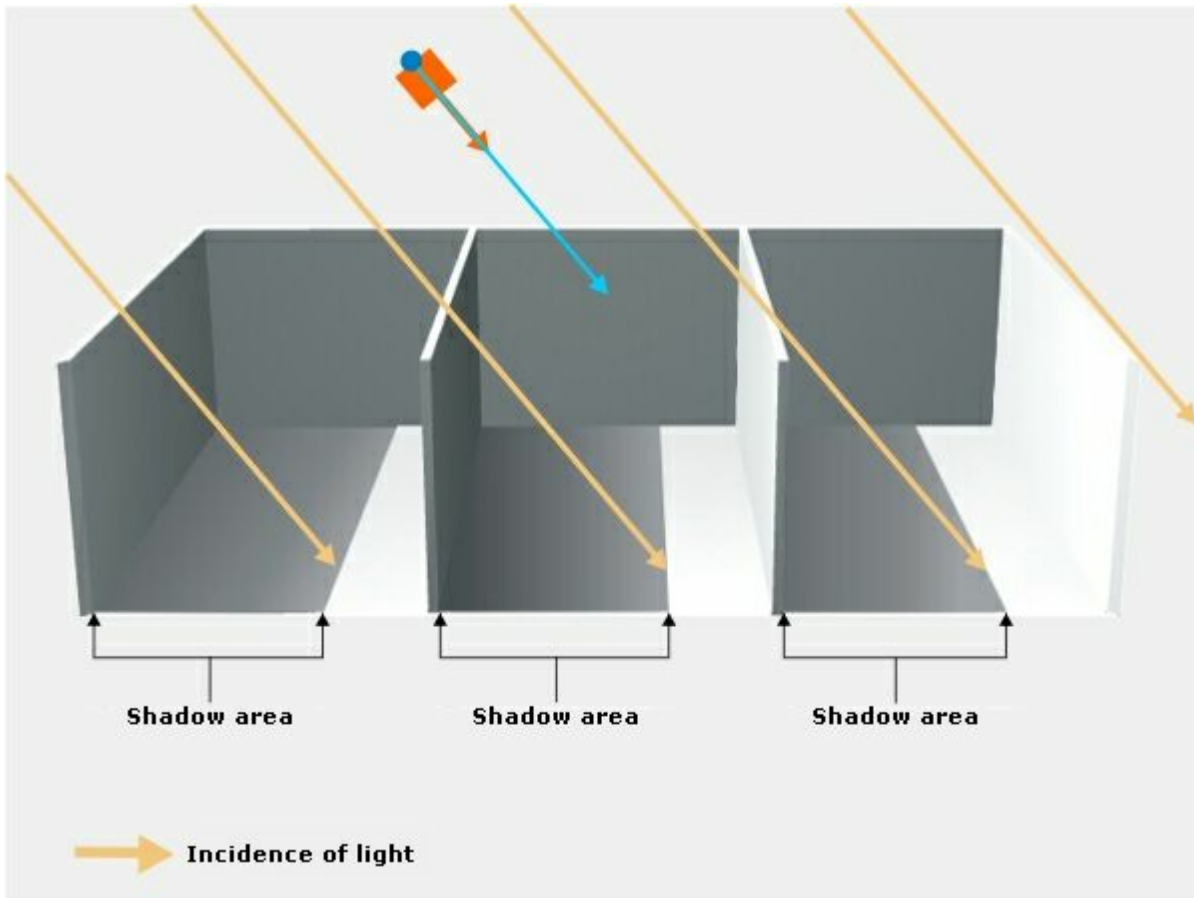
Figure 6

Intensity

The intensity specifies the **brightness of the incoming light.** In contrast to spotlight or point light, the **intensity** of directional light is **identical everywhere in the planning**. It is **not related to the distance from the light source.**

The intensity at the source of the directional light can be **specified in the** Properties dialog box and ranges from **0 (no light) to 1 (highest intensity)**.

Color

The color of the directional light can be determined in the Properties dialog box. The **default color** is **white.**

Shadow

pCon.planner can **calculate shading**. To apply shading, **"Shadow"** has to be checked in the Properties dialog box.

Shadow is **only displayed** in the perspective camera view. The other views do not support shadows.

> **Note**
>
> The **shadows** of manually applied spotlights are **disabled by default**. Check "Shadows" in the properties dialog box to display the shadows.

Switch directional light on an off

All illumination used in your planning can be **switched on and off** via the Properties dialog box. **Check** the entry **"Light Source"** to **switch** all light sources **on** and uncheck to switch them off.

Display / hide directional light elements

You can **display or hide the directional light symbols**. Simply **click** the **arrow next to** the **Layer symbol** on the Edit group (Home tab) to open the Layer control dialog. Then **check / uncheck "Show lighting"**. **All light symbols** (not only the Spotlight) will be **displayed / hidden.**

Whether you show or hide the lighting symbol has **NO effect on the illumination of your planning**.

3.7.5.3 Point light

The point light **emits light in a 360° angle** from the light source **into all directions** (see Figure 3). It can be **modified in** color**,** intensity and range**.**

The application of point light and its properties are discussed as follows.

Application of point light

The application of point light is primarily used to **light up specific objects**. Figures 1 and 2 show two examples how point light was applied to achieve just that.
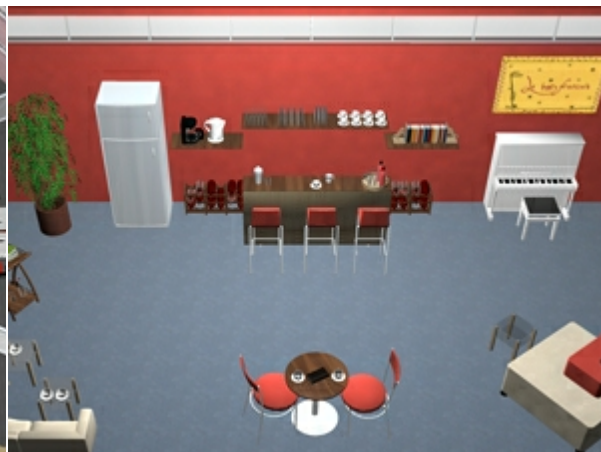
Figure 1

Figure 2

To apply point light sources to your planning follow the steps below:

1. **Click** the **down arrow next to** the **room items** on the <u>Home tab</u> **or** the <u>Insert tab</u> (see <u>here</u>)**.**
2. In the lighting category **click "Point light"**.
3. **Click** inside the <u>viewport</u> to **position the light source**.

Point light properties

The point light properties can be **modified in** the <u>Properties dialog box</u> or with the mouse.

Position

Option 1:

The position of the directional light can be changed by the **entry of the coordinates for x, y and z** (red, green and blue axis) in the <u>Properties dialog box</u>. These coordinates refer to the **source of the light** (Figure 3).

Option 2:

Another **option** is to move the **point light symbol**. **Click the symbol, move it** to its new position and **click again** to fix it.

Intensity and range

The **range** specifies the **distance to which the light source shines**. The range is **specified in meters** and **applies to all directions equally.**

The **intensity** specifies the **brightness of the light source**. It can be modified in the the <u>Properties dialog box</u> and ranges from **0 (no light) to 1 (full intensity)**. The intensity **decreases linearly with growing distance** until it reaches zero out of the previously set range.
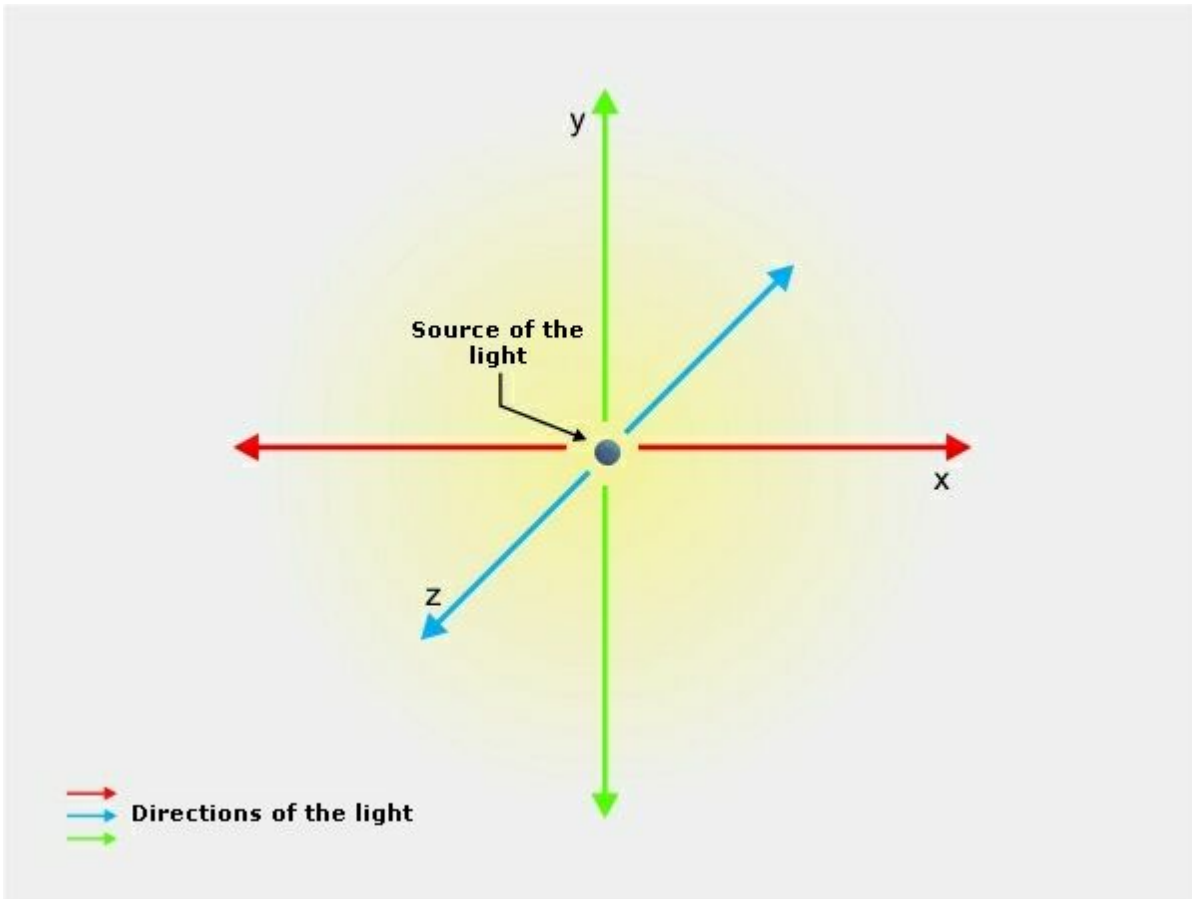
Figure 3

Color

The color of the point light can be determined in the Properties dialog box. The **default color** is **white.**

Switch point light on and off

All illumination used in your planning can be **switched on and off** via the Properties dialog box. **Check** the entry **"Light Source"** to **switch** all light sources **on** and uncheck to switch them off.

Show / hide point light elements

You can **display or hide the point light symbols**. Simply **click** the **arrow next to** the **Layer symbol** on the Edit group (Home tab) to open the Layer control dialog. Then **check / uncheck "Show lighting"**. **All light symbols** (not only the Spotlight) will be **displayed / hidden.**

Whether you show or hide the lighting symbol has **NO effect on the illumination of your planning**.

3.7.5.4 Default lighting

Whenever you **load** a **drawing** pCon.planner applies the **default sources of light**. These aim at guaranteeing a basic illumination of your drawing. The default lighting consists of **three directional lights** from the **directions X, Y and Z.**

The **shadows** of the lights are **disabled by default**. Via the <u>Properties dialog box</u> you can **activate** the shadows of each of the three lights individually.

If you have **deleted** the default illumination by accident, you can **reapply** it via the entry **"Default lighting"** in the Room group on the <u>Insert tab</u> (figure 1).
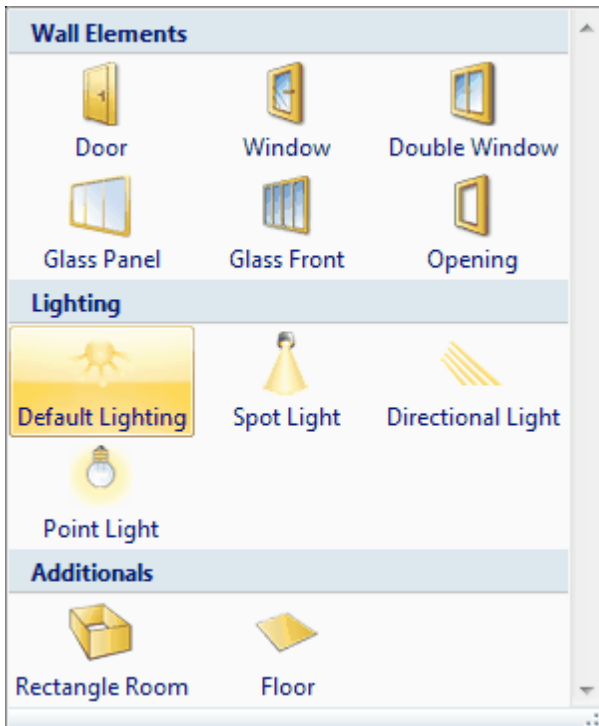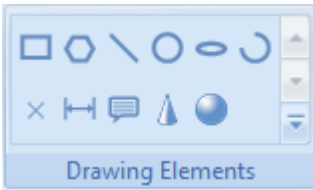

Figure 1

3.7.6   Drawing elements

The **Drawing elements group** on the Insert tab provides a number symbols, which you can **insert into your project**. This chapter shows you how to create and edit such objects.

Figure 1

Contents

1. Creating drawing elements
2. Moving drawing elements
3. Rotating drawing elements
4. Scaling drawing elements
5. Extruding drawing elements
6. 2D symbols catalog

3.7.6.1   Creating drawing elements

The pCon.planner allows you to create **two- and three-dimensional drawing elements** in your planning. Since the **creation** of the **individual drawing elements is very similar** we will only explain how to create a **rectangle**. Information on special elements are given at the end of this chapter.

Contents

1. Creating drawing elements
   1. Offset value
   2. Color
2. Information on further drawing elements
   1. Polygon
   2. Line/Polyline
   3. Measurements

Creating drawing elements

To **create a rectangle** do the following:

1. **Click "Rectangle"** in the **Drawing elements group** on the Insert tab**.**

2. **Click the** viewport to start drawing. **Alternatively** you can enter exact values with your keyboard to **set the origin** of the object. **Confirm** each entry **with Enter**.

3. **Move the mouse** pointer to **resize the rectangle**, starting from its origin and **click to complete** the rectangle.

4. **Or**: Enter the size with your **keyboard** and **press Enter**.

Offset value

Some drawing elements display a **third value - the offset** - during the drawing process. This value allows you to **position the drawing element by a minimum distance above another object**. Thus **flickering effects are prevented** that would occur when two objects are located on one and the same <u>layer</u>.
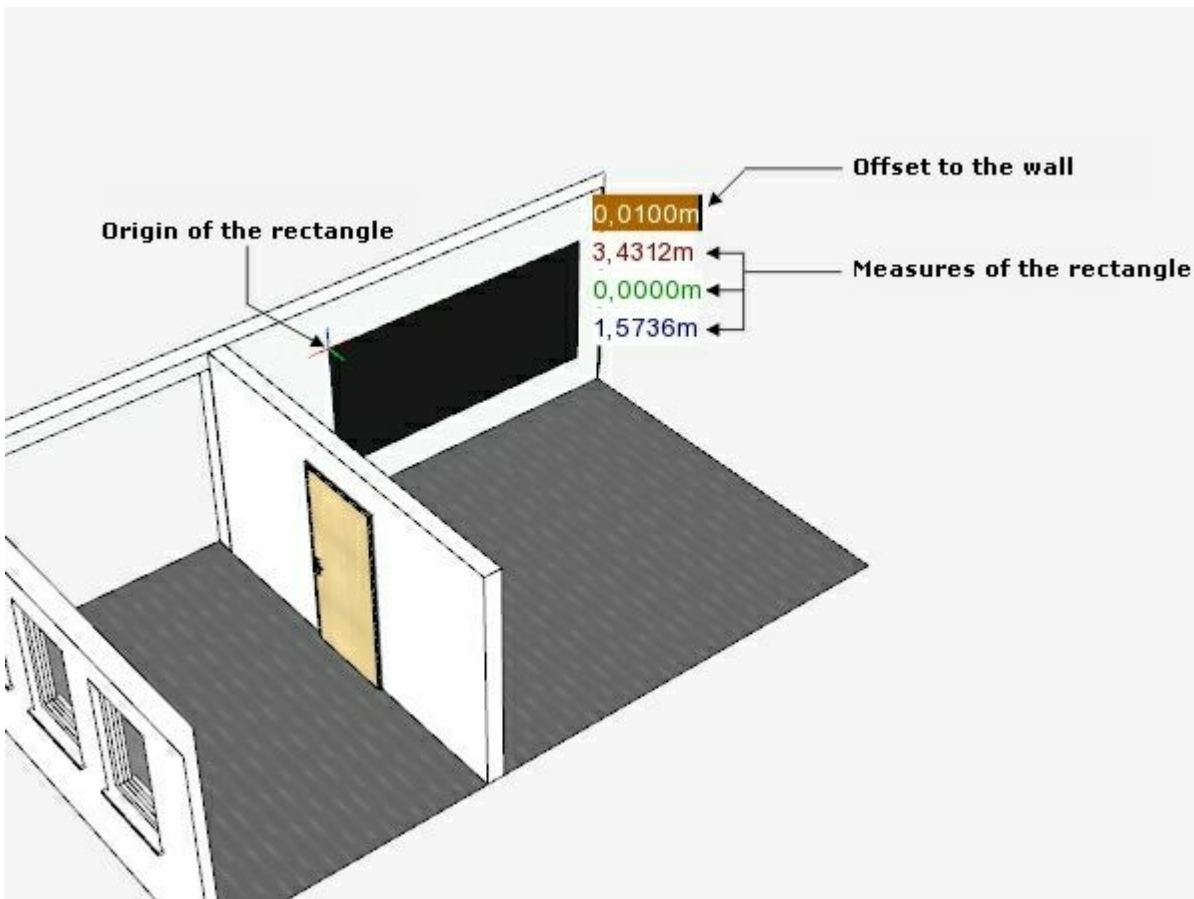

Figure 1

Color

Bild 2

Before you start to create a drawing element you can **determine its color and apply a filling.**

To do this **click the arrow** (encircled on figure 2) in the **Drawing Elements group** (<u>Insert tab</u>) and **select the appropriate entries** in the dialog box.

Note

You can **change the fill color** of drawing elements **at any later time**. Please click <u>here</u> for more information.

Information on further drawing elements

Polygon

To **draw a polygon** just **draw all necessary lines after another**. When you finished the polygon **press Enter** or **click "Finish"** in the context menu.

Line/Polyline

Similarly to the polygon you can **press Esc** or **select "Finish"** in the context menu to **complete a polyline.**

Measurements

To **complete** the **entry of measurements press Esc or select "Cancel" in the** context menu**.**

3.7.6.2   Moving drawing elements

Use the **Move tool** for **repositioning drawing elements 2D and 3D objects** in the planning.

To move objects do the following:

1. Select the relevant **element. Click again** either edge or surface of the element to **activate the move mode.**
2. **Move** the **mouse** pointer to reposition the object.
3. **Click** at the **desired location** to complete the moving.

 Note

1. For more information on moving objects please refer to chapter Functions and tools / Move.
2. **Alternatively** to manual moving enter specific values.

3.7.6.3   Rotating drawing elements

Use the **Rotate tool** for rotating 2D and 3D objects in the planning.

To move objects do the following:

1. **Double-click** the relevant **element** to start the Rotate tool.
2. **Click again** to **set the starting point** of the rotation.

3. At this point you **start with the rotation** of the object.
4. **Next to the mouse pointer** the current **rotation angle in degrees** is given.
5. **Click to complete** the rotation.

> **Note**
>
> 1. For more information on rotating objects please refer to chapter <u>Functions and tools / Rotate</u>.
> 2. Alternatively to manual rotating <u>enter specific values</u>.

3.7.6.4   Scaling drawing elements

Use the **Scale tool** for scaling drawing elements in the planning.

To scale objects do the following:

1. <u>Select</u> the **object** you want to scale.
2. **Click** the **Scale tool** in the Tool group on the <u>Edit tab</u>.
3. **Click one** of the **interactor**s and **move the mouse pointer** to scale the object.
4. **Click to complete** the scaling.

> **Note**
>
> 1. For more information on scaling objects please refer to **chapter <u>Functions and tools / Scale</u>.**
> 2. Alternatively to manual scaling <u>enter specific values</u>.

3.7.6.5   Extruding drawing elements

Rectangles, circles, ellipses, polygons and polylines (interconnected lines) can be extruded to three-dimensional objects.

To extrude objects do the following:

1. <u>Select</u> the **two-dimensional object** you want to extrude.
2. **Click** the **Extrude tool** in the Tool group on the <u>Edit tab</u>.
3. **Click** the **edge or surface** of the two-dimensional element to **start the extrusion**.
4. **Move** the **mouse** pointer to extrude the element.
5. **Click to complete** the extrusion. The tool remains active so that you can continue extruding another element.

3.7.6.6   2D symbols catalog

The **2D symbols catalog** is a **web catalog**. It contains various **symbols**, such as **borders for drawing**, **title blocks, office furniture** but also **pictographs**. The catalog is constantly being extended.

All objects are available as **two-dimensional plannings** and greatly extend your possibilities when designing a room. You can access the 2D catalog either in any **browser** or via the pCon.catalog website or via the **pCon.planner** according the instructions given below.
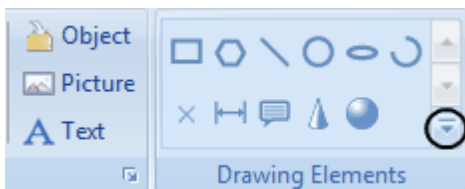
Figure 1

In the Insert group on the Home tab as well as in the Drawing Elements Group on the Insert tab you find the **Drawing Elements**. **Click** the **arrow** encircled on figure 1 to **open the menu.**
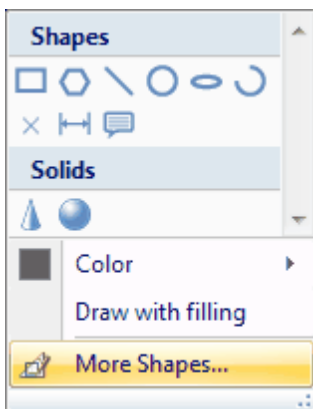

Figure 2

At the **bottom** of this menu you find the menu item **"More shapes..."**. When you **click** this item, the **2D symbols catalog opens** in the pCon.catalog window.

Figure 3 shows the **interface** of the **2D Symbols Catalog**. **Open** the appropriate **folder** and **select** an **element** for your drawing.
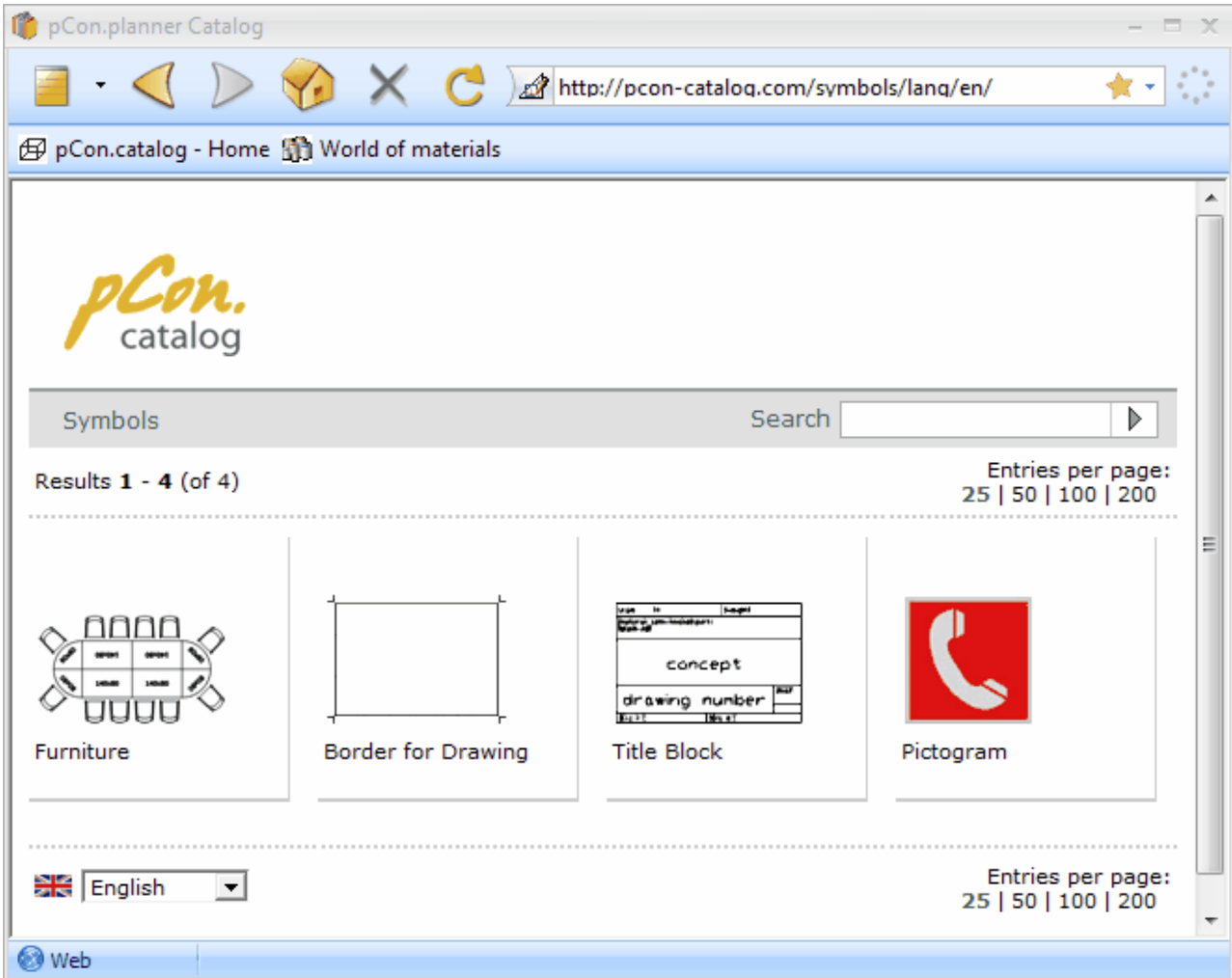
Figure 3

Figure 4 shows a **title block** and a **border for drawing** in combination with other **drawing elements** as an example.

Figure 4

3.8 Presenting the planning

pCon.planner features a **Presentation mode** for **highly professional and impressive presentations** of your plannings to your customers and business partners. It works in the **Full Screen mode.** Your possibilities of **interaction** are **restricted** to **navigation** and **changing the quality of visualization and the** camera perspective. Thus you **cannot accidentally move items** or **make any changes** to your planning during the presentation.

Furthermore, the pCon.planner provides a **tool to create animations** of your drawings. The animation can then be **exported** as a **sequence of pictures** and **converted into** a **video** with **common video editing software**, e.g. Windows Movie Maker, Virtual Dub or Quick Time.

The following chapters explain how to use the presentation mode and the animation tool.

Contents

1. Presentation
2. Animation

3.8.1 Presentation

Contents

1. Starting and quitting the presentation
2. Navigating in the Presentation Mode
3. Rendering modes
4. Camera perspectives

Starting and quitting the Presentation mode

There are **three options** for **starting the Presentation mode**:

- Press "F12".
- Click the Presentation icon in the status bar.
- Click the Presentation button on the View tab.

There are also **tree options** for **quitting the Presentation mode**:

- Press "Esc".
- Press "F12".
- Click "X" in the upper right corner.

Navigating in the Presentation Mode

In the Presentation mode you can use the following **options for navigation**:

- Walkthrough Interaction Mode

- Zooming via scroll wheel or the following keyboard shortcuts:
    - "Strg" + "+" (zoom in),
    - "Strg" + "-" (zoom out),
    - "Strg" + "Space" (show the **full extent of the active** viewport)
- WASD navigation
- Up and down movement in the Perspective camera view:
    - "R": moving up
    - "L": moving down
- Orbit mode
- Pan mode

Rendering modes

You can switch between the different rendering modes using the following **keyboard shortcuts:**

- "Shift" + "F1": Wire frame mode
- "Shift" + "F2": Hidden line mode
- "Shift" + "F3": Colored mode
- "Shift" + "F4": Conceptual mode
- "Shift" + "F5": Shaded mode
- "Shift" + "F6": Realistic mode

Camera perspectives

After starting the **Presentation mode** the planning is displayed in the camera perspective that was previously active. Of course you can **use any other** camera perspective, as well. Just **click the red camera view** in the upper left corner and **select the desired view. Alternatively** you can use the following **keyboard shortcuts** to change the camera perspective:

- "Ctrl + Shift + F1": Perspective
- "Ctrl + Shift + F2": Front
- "Ctrl + Shift + F3": Top
- "Ctrl + Shift + F4": Left
- "Ctrl + Shift + F5": Right
- "Ctrl + Shift + F6": Rear
- "Ctrl + Shift + F7": Bottom
- "Ctrl + Shift + F8": North East
- "Ctrl + Shift + F9": North West

- "Ctrl + Shift + F10": <u>South East</u>
- "Ctrl + Shift + F11": <u>South West</u>

3.8.2 Animation

pCon.planner features a **tool** to **create and record animations** which is explained in the following chapter.

Inhaltsübersicht

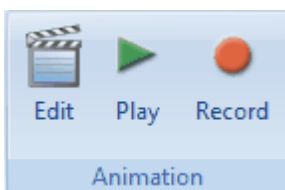## Create and play an animation

Figure 1

In order to create an animation **click "Edit"** in the **Animation Group** on the <u>Presentation tab</u>.

Now the **Animation Editor opens** (Figure 2). This editor allows you to **create individual animations**. You can **set individual camera positions** or **select existing cameras** to apply them to the animation. Furthermore, the editor offers various **options** for the type and sequence of the animation.
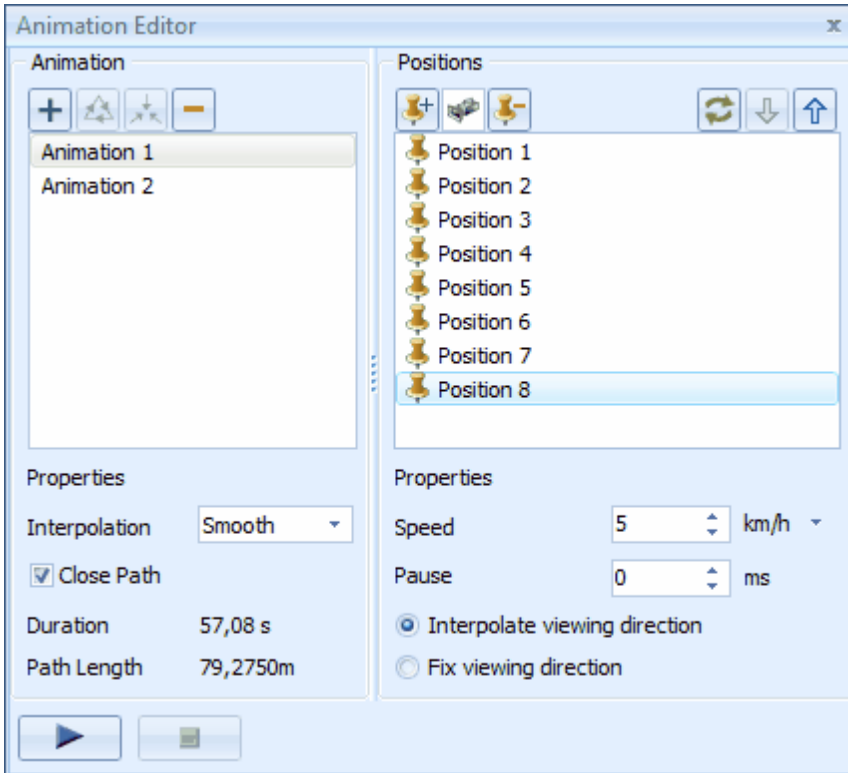
Figure 2

The editor is divided into **three parts.**

- On the **left** side you find the **settings and functions** that are needed **to create** an animation.

- On the **right** side you can **set individual camera positions** for the animation and make the **settings for each position**.

- In the **lower part** you find two buttons: With the **"Play" button** you can **start the animation**. After starting it this button converts into the Pause button which can be used to interrupt the animation. The **"Stop" button stops playing** the animation.
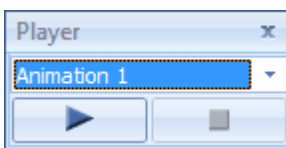
Figure 3

Alternatively you can use the "**Play" button** in the **Animation group** on the <u>Presentation tab</u> (Figure 1). Then the **Animation player** opens (figure 3) and you can use the buttons "Play", "Pause" and "Stop".
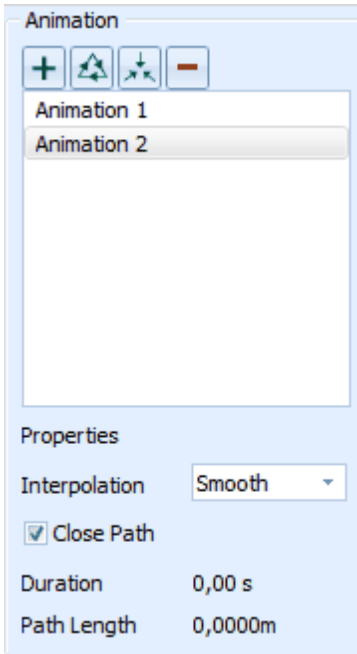
Figure 4

To **create** a **new animation** click the green **+** in the Animation editor. An animation with the name **"Animation 1"** is generated. If this name is already occupied the animation will get the next number in **numerical order** (Animation 2).

Now you can **modify the name**. The text is selected automatically and you can **enter** a **new name**. Press Enter to confirm your entry. If you should like to change the name later you just need to select the animation and press Enter. Now you can edit the name.

With a **click** on the red **−** you can **delete** a **selected animation**. Alternatively you can press Enter after selection. Please bear in mind that deleting the animation **cannot be undone!**

With the symbols **"Create animation along path"** and **"Create animation along path around target point"** you can define a camera path (for example with drawing elements) along which the camera moves around an object. Read more under " Animation along a path" later in this chapter.

Furthermore, you can **edit** the **properties** of an animation. Check **"Close Path"** if you want to close the camera path. In this case the **camera moves from** the **last** position **to** the **first position**.

Under **"Interpolation"** you can select the modes **"Straight"**, **"Smooth"** and **"Curved"**. In **"Straight"** animations the camera moves **straight between** the different **positions**. In a **"Smooth"** animation the camera paths are straight but the **change of the direction** is performed **as a smooth curve**. And if you activate **"Curved"** the camera performs a **curve between** the single **positions**. Theoretically you could generate a circular camera ride with this setting.

At last the **duration** of the animation as well as the **length of** the **path** are displayed.
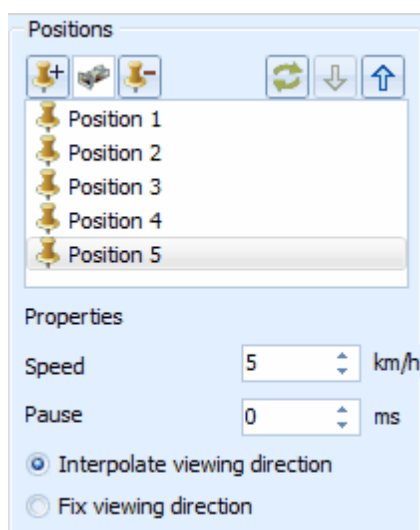

Figure 5

- The single **camera positions** are **defined** in the right part of the animation editor **under "Positions"**. Follow these steps to create a new path:

    1. **Select** an **animation** to which you want to add the positions.

    2. **Switch to** your **drawing** and select the Perspective camera view.

    3. In the drawing **navigate to** an **appropriate view** for the **first position**.

    4. **Click** **"Grab new position from selected view"**. The current **view** is **added** as first camera position.

    5. **Repeat steps 1 to 4** until you have simulated the desired camera path.

Alternatively you can **click** the **camera icon** . A list with all cameras that you have placed in your drawing is displayed. With a **click onto** one of the **camera**s it is **add**ed **to** the **path**. You can **modify the name of each position**. After setting the position the text is selected automatically and you can **enter** a **new name**. Press **Enter** to confirm. If you should like to change the name later you just need to select a position and press Enter. Now you can edit the name.

- To **delete** a **position or camera**, select it and click "Delete selected position(s)".

- To **change** the **order** of the positions / cameras, select one of the positions / cameras and press or . Alternatively you can move the positions / cameras by Drag & Drop.

- If you want to **edit a position** at a **later** time do the following:

  1. Activate the position by double-click in the position list of the animation editor. The position will be displayed in your drawing.

  2. Modify the view.

  3. Click in the animation editor to assign the current view to the selected position.

- Last but not least you can **edit** the **camera speed** as well as the **pause time** between the positions.

- If you click **"Fixing viewing direction"** the viewing direction remains fixed until the camera reaches the next position.

- **"Interpolate viewing direction"** smoothes the change of the viewing direction during a position change.

Figure 6 illustrates the **path** of an **animation** in **blue**. The **single positions** and **viewing directions** are marked with **short blue arrows**. If you **select a position** in the animation editor the corresponding **arrow** is highlighted in **orange**.
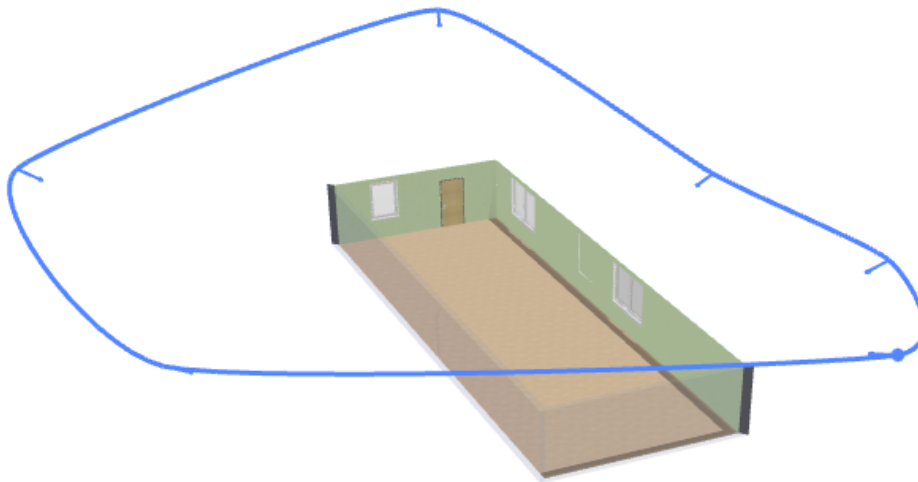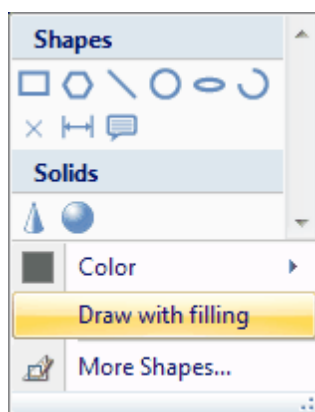
Figure 6

Animation along a path

Figure 7

You have the possibility to **create** an **animation along** a **shape or** along a **drawing element**.

To do this you first need to **draw a shape without filling** (deactivate "Draw with filling" before you draw the object - figure 7) and **select it**.
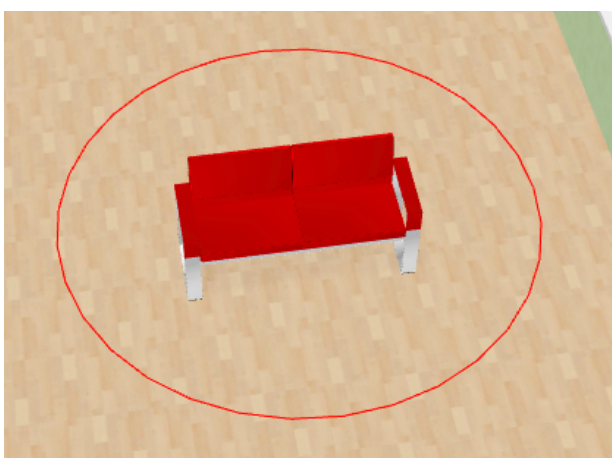

Figure 8

In this example a **circle** was drawn **around** the **object**. The circle will still be in the drawing after creating the animation and can be reused at any time.
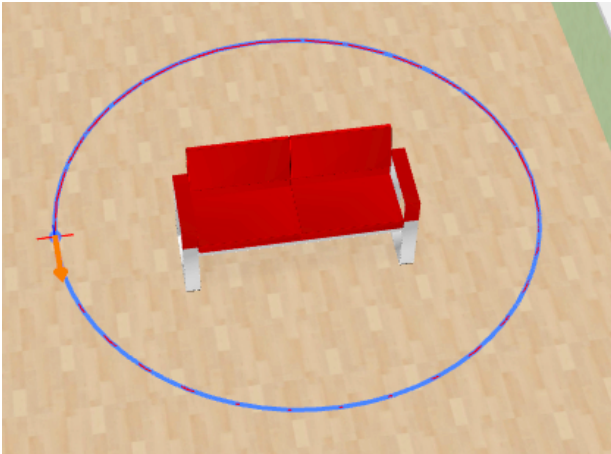
Figure 9

To create the **animation along this circle** follow these steps:

1. **Select** the **circle**.

2. **Click** ⬆ **"Create animation along path** " in the animation editor. The animation **path** is displayed in **blue**.

3. **Click** the **path** to **set** the **starting point** of the animation.

4. **Click again** to **define** the **direction** of the animation. The direction will be indicated by an **orange arrow**.

The animation is now created.

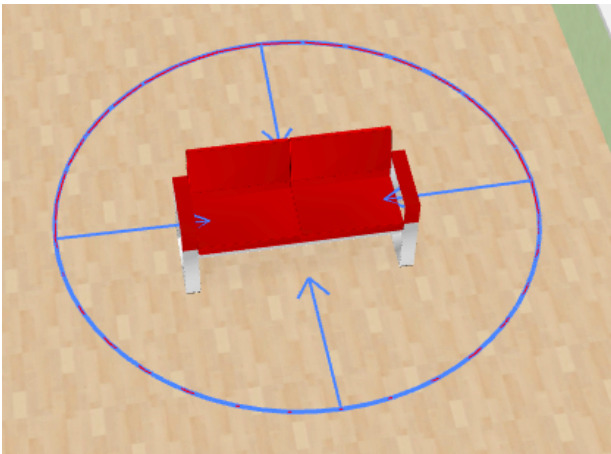In this example the camera moves counter-clockwise along the circle.

Figure 10

To create an animation along this circle around the piece of furniture follow these steps:

Select the **circle** (drawn without filling)

1. **Click** ⬆ **"Create animation along path around target point"** in the animation editor. The circle now turns into the animation path.

2. Now **click** the **target point** (in this example the center point of the circle) and **again** to **set** the **direction** of the path.

The camera will now perform a movement around the target point.

Record the animation

With a **click** on **"Record"** in the Animation Group you **activate** the **Animation Recorder**. There you can adjust the settings for the export of your animation as sequence of pictures. In the top part you can select the animation to be recorded.
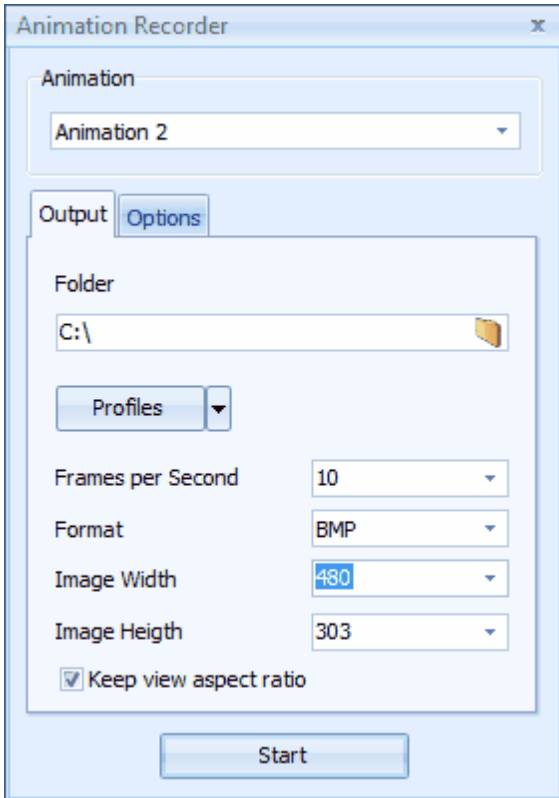
Figure 11

On the **Output tab** (figure 11) you can **select** the **output folder**. Click the **Folder icon** and **select a folder** in the dialog. Alternatively you can click the path and enter it manually. A folder with the name of the animation is created. When you start the record process, pCon.planner saves the sequence of pictures in this folder.

Furthermore, you can **set** the **resolution**, the **picture format** and the **frames per Second** in this dialog.

Alternatively you can **select a standardized profile.** Please note that some of the options are only available in pCon.planner Pro.

The option **"Keep view aspect ratio"** reduces the size of the pictures in terms of hight and width to **match** the **size of** the pictures **with** the **size of** the **viewport.**
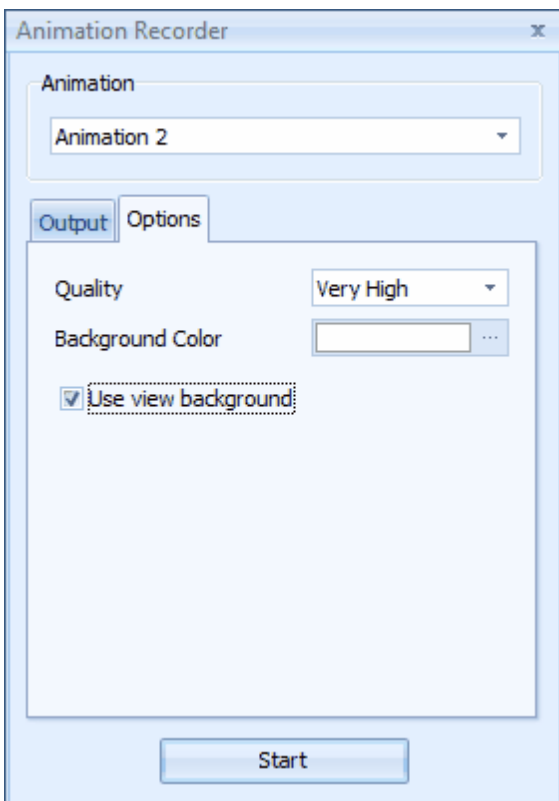

Figure 12

On the **Options tab** you can select the **quality** and the **background color** (figure 12).

There are **three** selectable **levels of quality**: **"Standard", "High" and "Very High".** For optimum results you should select **"Very High".** In this case though, the **recording time** will be much **longer** depending on the size of the drawing and performance of your computer.

Furthermore, you can select a **background color** or **use the view background**.

Click **"Start"** at the bottom of the **Animation Recorder** to start the record process. You may

be displayed a warning that you have selected an output setting that is only available in the pCon.planner Pro. In this case select the settings 480 x 388 or smaller.

Furthermore, you may be noticed that there is already a folder with the name of the animation. You can either overwrite the files of this folder or rename the path or the name of the animation.
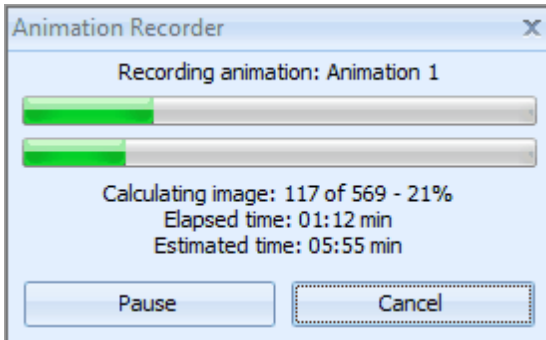

Figure 13

When the **record process starts**, a window displays the **record status of** the **picture** as well as of the **complete animation**.

Along with the **number** of the currently **processed picture** and the **percentage**, you can see the **elapsed time** and **the estimated total time**.

You can **interrupt** the recording of the animation via the Pause button or **cancel** it.

Note

- You can **select several animations/positions** by **moving** the **mouse** over the animations/positions.

- When you **move** the **mouse** with the **Shift key pressed** the **selected entry and all that is above** the entry is also selected.

- To **select several arbitrary entries** press the **Ctrl key** and **click** the **entries**.