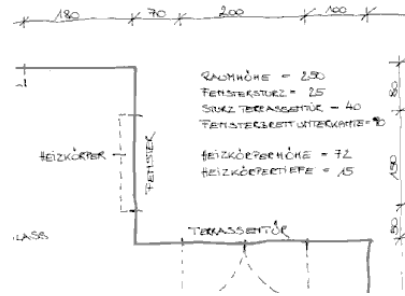


Welcome

Thank you very much for your interest in On-Site Survey. On-Site Survey is a modern survey software which will support you during the recording of buildings. Instead of drawing sketches on paper you can now directly work with a tablet PC. On-Site Survey uses your measured values to automatically construct ground plans. You can check the ground plans on site and correct possible faults immediately. Thus On-Site Survey ensures complete and plausible surveys in just one locality inspection.



The use of a hand laser with Bluetooth interface increases the accuracy, speed and comfort of your work.



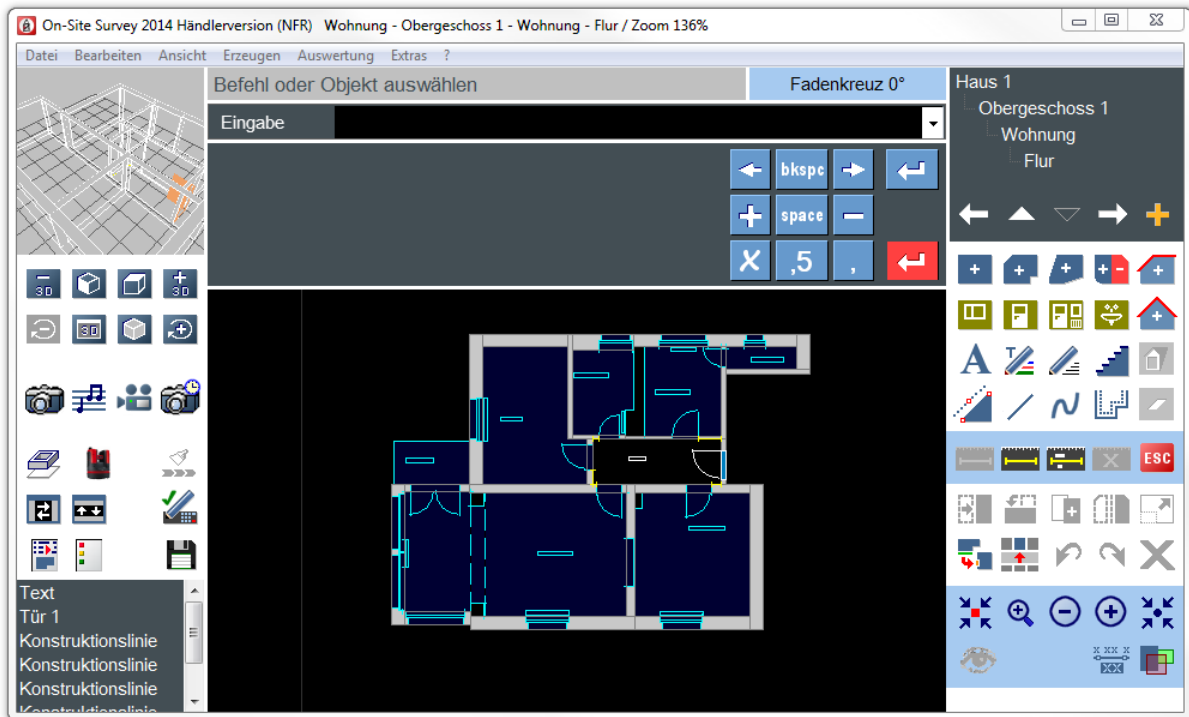
The multimedia features of On-Site Survey allow to document your buildings by inserting pictures with position and viewing direction in the ground plans. You can record spoken comments and even videos using a webcam during your work.

For documenting equipment and materials, an integrated function which can record additional data is available.



On-Site Survey 2014 can be used on all mobile computers with Windows 7/8 operating system, ideally on tablet PCs. The transfer of all data recorded to CAD programs leads to a significantly reduced processing time from the survey to the final set of drawings.





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1 Explanations on the manual

The manual is based on the On-Site Survey version 2014 and shows how to use the software and work with it. The software and hardware names as well as brand names of the respective companies used in this manual are generally protected.

All the information and programs indicated in this manual have been carefully acquired and/or compiled by the authors and reproduced in compliance with effective check measures. Nevertheless errors can never be totally excluded.

Therefore, maxmess software would like to point out that the company does not assume any liability, guarantee or legal responsibility for consequences occurring.

Please feel free to inform us about possible errors.

Texts with a colored background

contain important information.

[Buttons]

are in bold type and square brackets.

[F2]

keyboard functions are in bold type, blue and in square brackets.

shortcuts are indicated in capital letters; in practice you only have to press this key

File – Open project

menu commands are bold and italic.



highlighted chapters or buttons refer to the Professional version

2 Installation

2.1 System requirements

Minimum requirements PC, notebook, tablet PC, netbook

Operating system	Microsoft Vista, 7, 8
Installation	download
Hard disk capacity	500 MB
Screen	960 x 600 pixels
Processor	at least 1 GHz
Main memory	at least 1 GB RAM

Recommended equipment tablet PC

Operating system	Microsoft Windows 8
Screen	1280 x 800 pixels
Processor	1.0 GHz Dual-Core
Main memory	2 GB DDR3 RAM

tablet computer

Recommended additional devices

Leica DISTO	laser measuring devices with Bluetooth interface Leica DISTO plus/A6/D3aBT/D8 Leica DISTO D810, D110 and D510 only with Windows 8.1
-------------	---

2.2 Install On-Site Survey

Use the Setup.exe of On-Site Survey to install the program on your PC with three projects and the electronic manual in PDF format.

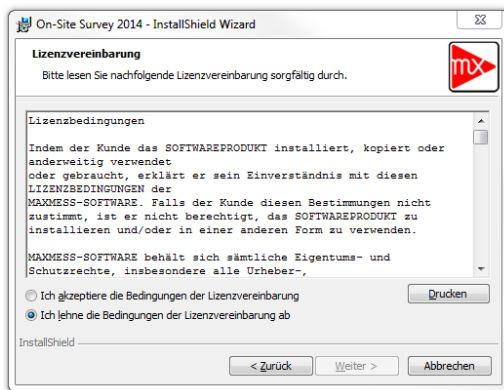
Depending on your particular use of On-Site Survey 2014 please download the following setup files from the maxmess website under: <http://www.maxmess-software.de/downloads/>:

- | | |
|-------------------------|--|
| On-Site Survey 2014 | Modern survey program for Windows Vista/7/8.x.
On-Site Survey 2014 runs under Windows XP, however, the installation and use of the software is not supported anymore. |
| Espeak-1.48.04 | This software is required for the speech output of Survey. Install the program after the installation of Survey 2014. |
| DISTO transfer PC V4.06 | Install this software if you would like to use Survey 2014 with one of the following Leica DISTO models via Bluetooth: <ul style="list-style-type: none">• DISTO plus/A6/D3aBT/D8/D110 For proper use, the DISTO must be switched on and Bluetooth activated.

Leica DISTOs D810, D110 and D510 are supported under Windows 8.1. For proper use, these laser devices must first be connected via the Bluetooth Manager with the PC.
The Leica DISTO D110 can only be connected under Windows 8.1 via the software: DISTO transfer PC from version 4.06! |

2.2.1 Start installation routine

After the download of the required setup files, the installation of On-Site Survey will start.

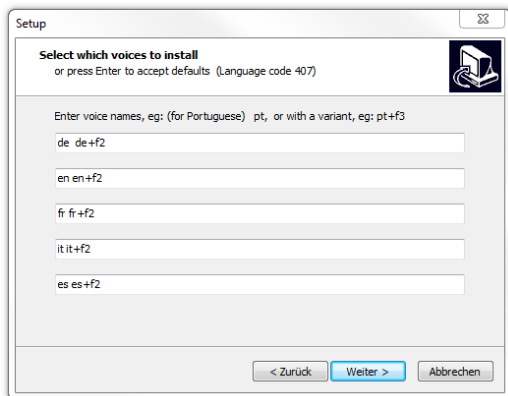
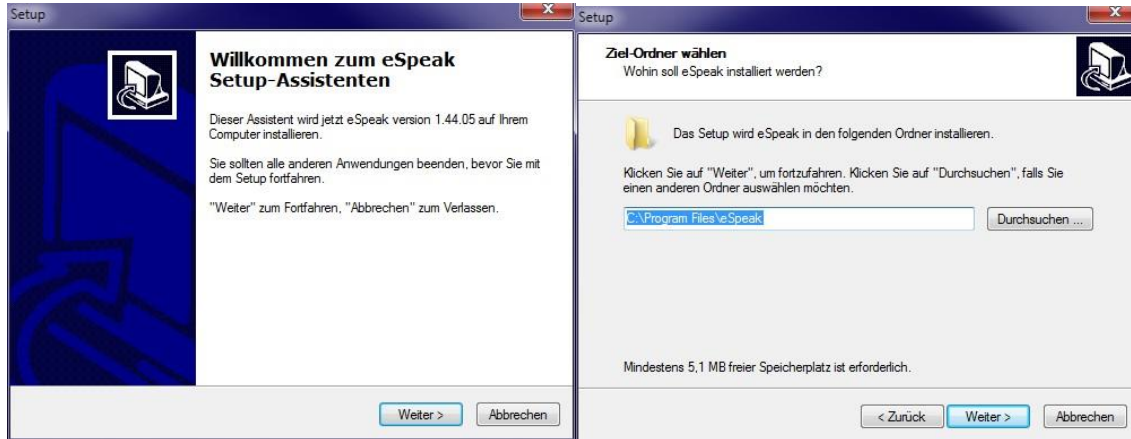


When you have accepted the license agreement in the following dialog, you can complete the installation by clicking on the button Continue.

For the use of the speech output, please install Espeak-1.48.04 according to chapter 2.2.2. If you would like to use Leica Bluetooth laser devices it might be necessary to install the Leica Software "DISTO transfer PC".

2.2.2 Install SAPI 5 speech engine

This speech engine works on all modern 32 and 64 bit operating systems. Different languages are available. The quality of the voice output may differ depending on the language. As often only single words or figures are read out in On-Site Survey, also a bad quality of the voice output is not a problem in many cases. The installation of the SAPI 5 speech engine and the languages requires some manual work and can only be done as follows:



Enter the desired languages in the five lines of this dialog:

Example 1:

de de+f2 (for German and German with female voice variant 2)
 en en+f2 (for English and English with female voice variant 2)
 fr fr+f2 (for French and French with female voice variant 2)
 it it+f2 (for Italian and Italian with female voice variant 2)
 es es+f2 (for Spanish and Spanish with female voice variant 2)

m1 – m7 are male voices , whereas f1...f5 are female voices with different settings.

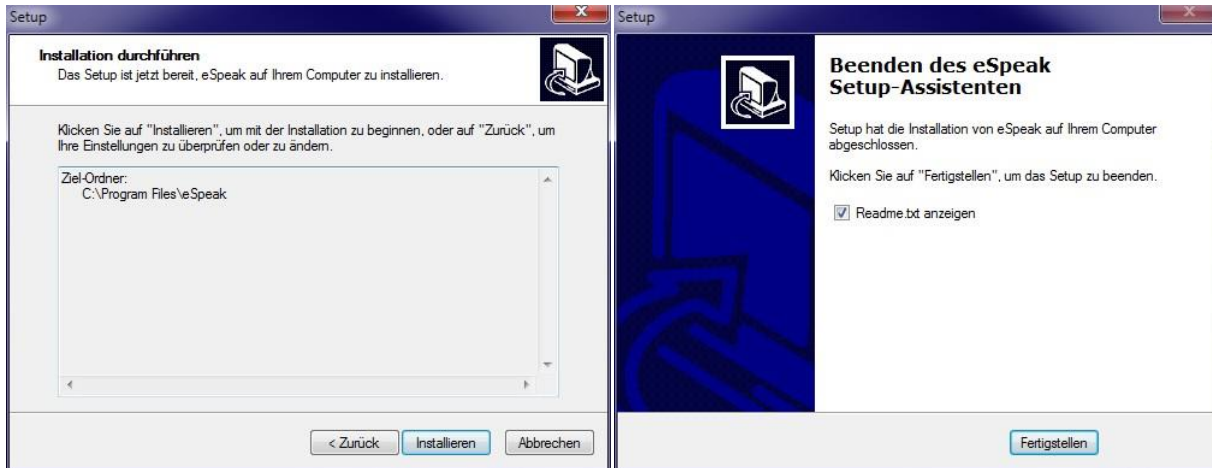
Example 2:

en
 fr
 it

The languages English, French and Italian are installed with a male voice.

The following languages are available. For further languages and dialects, look at the website <http://espeak.sourceforge.net/>:

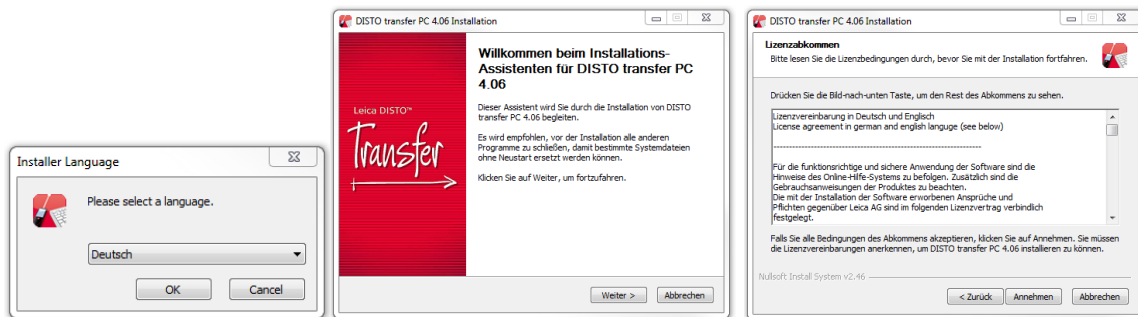
cs	- Czech	de	- German	en	- English
el	- Greek	eo	- Esperanto	es	- Spanish
es-la	- Spanish (Latin America)	fr	- French	fi	- Finnish
fr	- French	hr	- Croatian	hu	- Hungarian
it	- Italian	pl	- Polish	pt-pt	- Portuguese (Europe)
ro	- Romanian	ru	- Russian	sk	- Slovakian
sr	- Serbian	sv	- Swedish		
tr	- Turkish				



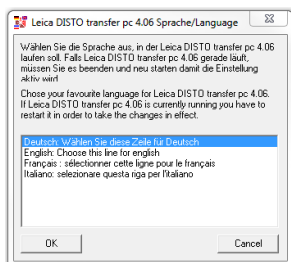
Under Windows 8.x, Microsoft also provides the corresponding Windows 8.x installation language for the SAPI 5 interface which offers an improved voice quality.

2.2.3 Install the Leica software DISTO transfer PC

This software is required for the connection of the Leica Disto Bluetooth laser devices plus/A6/D3aBT/D8/D110. After the start of **SetupDISTO3.exe** the installation language can be defined.

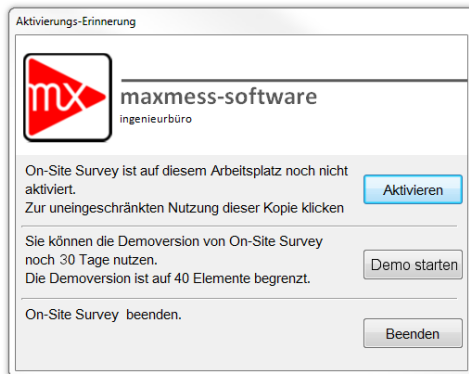


If you accept the license conditions, Disto transfer PC will be installed and the program language selected.



2.3 Start On-Site Survey

You can start On-Site Survey by clicking on the desktop icon or under **Start - All programs - On-Site Survey - On-Site Survey 2014**. The following dialog will appear:



2.3.1 Demo version

Click on **[Start demo]** to test the program in the demo mode for a time period of 30 days after the installation. In the demo mode the number of elements is limited to 40.

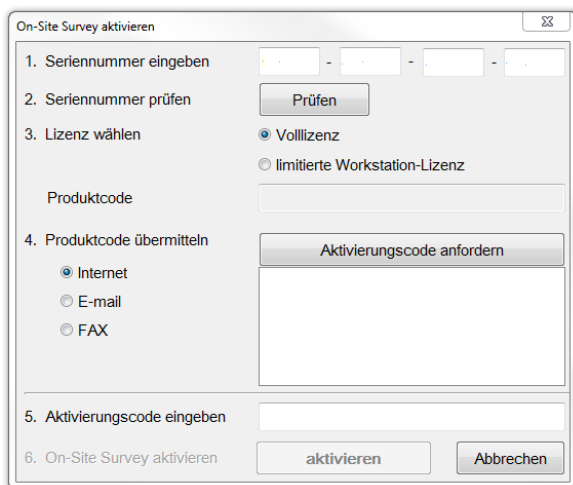
The activation reminder will appear at each program start if the program has not been activated.

2.3.2 Activate and release On-Site Survey

On-Site Survey can be activated at any time. For this purpose a valid serial number is required.

Only after the activation the unlimited software version is available.

A click on the button **[Activate]** will start the activation dialog:



2.3.2.1 Step 1 – Enter serial number

You can copy the serial number, click into the first field and insert the serial number in the fields using **[CTRL+C]** or **[Insert context menu]**.

2.3.2.2 Step 2 – Verify serial number

The program checks the validity of the serial number. An invalid or incomplete serial number cannot be activated.

2.3.2.3 Step 3 – Choose license

Full license

The full license is installed on a mobile device for work on site.

Limited workstation license

The limited workstation license is installed on an office computer. This license gives you reading access to On-Site Survey projects and allows to transfer projects to CAD, MS Word and MS Excel.

2.3.2.4 Step 4 – Transmit product code

Transfer product code via internet

The product code is transmitted to the authentication server. You will then receive the activation code. Using this method, On-Site Survey can be activated immediately and at any time.

The activation via internet is the most effective way of activation.

Transfer product code via email

In case of **email** activation, the standard email program with a prepared email will be started. It will be sent to the activation server, and you will receive the activation code by email. This method allows to activate On-Site Survey during the normal business hours from Monday to Friday within a few hours.

Transfer product code via fax

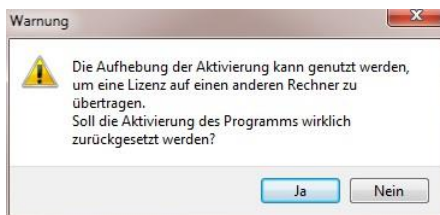
For the activation via **fax**, a fax number to which the activation code is to be sent is required. After clicking on **[Request product code]** an HTML page is generated and opened in the standard browser. Print this page and send it via fax to the number indicated. The activation code will be sent via fax and is to be entered in the field "Enter activation code". This method allows to activate On-Site Survey during the normal business hours from Monday to Friday within a few hours.

2.3.2.5 Step 5 – Enter activation code

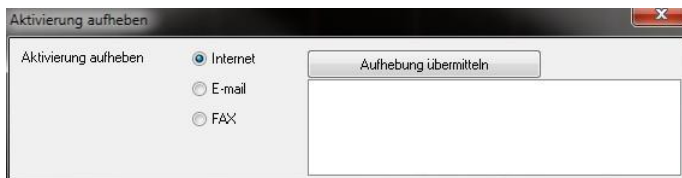
When the activation code has been entered, the software will be activated by clicking on **[Activate]**. All functionalities will be available then.

2.3.3 Transmit On-Site Survey license

The activation can be transmitted from one computer to another one. The **button [Annul activation]** is found in the menu **Help-About**.



Click on **[yes]** to save the currently loaded project. The following dialog will appear:



Removing the activation via internet is the quickest and easiest method. The released license can be immediately unlocked on another PC. On-Site Survey is automatically closed. Then after the activation the license can be used on any computer. The precondition for this is an identical serial number of the On-Site Survey version installed.

2.4 On-Site Survey Professional and Basic

The Professional version contains all functions. The Basic version has a restricted scope of supply. The following functions are not included:

3D preview

The 3D preview cannot be adjusted to the screen size.

Library

Library elements cannot be inserted in ground plans.

Multimedia functions

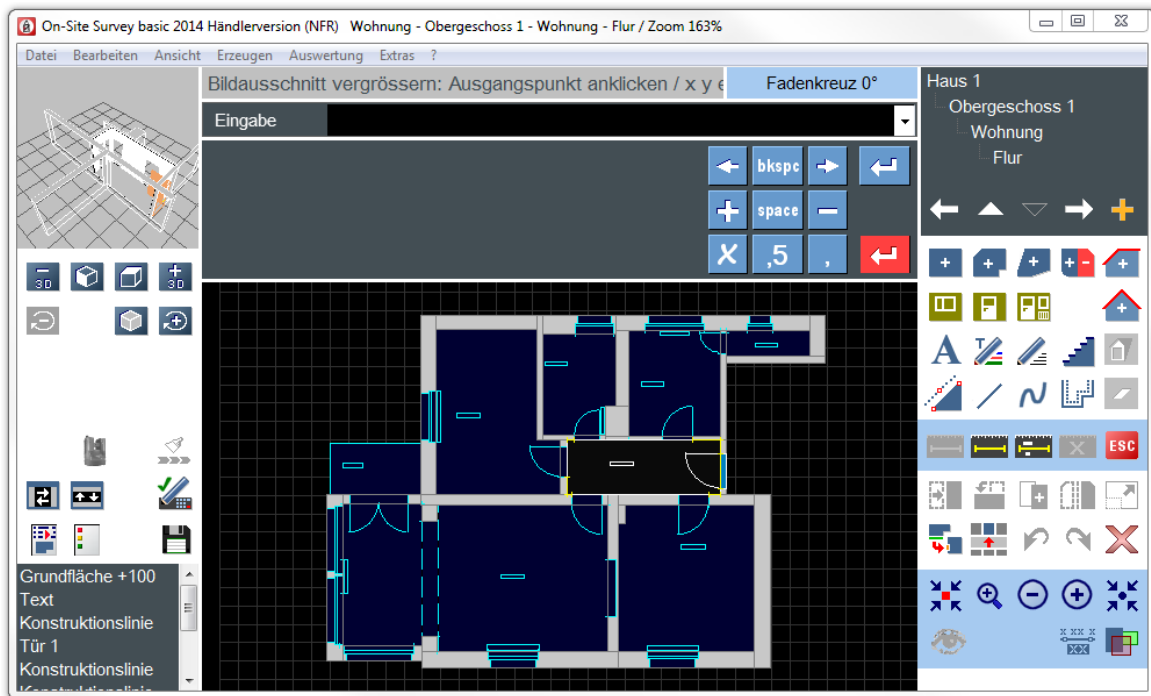
Photos, videos and spoken comments cannot be used in the Basic version.

Additional data

The additional data module is not available.

Templates

Existing scans or DXF plans cannot be used.



For both versions, the optional module Leica 3D Disto (see chapter 7.) can be used.

3 Working with On-Site Survey

In case of mobile applications, the requirements to be met by users, the technology used and the operational concept are much more comprehensive than for software normally used in an office. On-Site Survey supports the work on site in many ways:

- large buttons for fast command selection
- audible feedback in case of successful button selection
- integrated handwriting recognition
- speech output of all figures and texts entered
- gesture command for the pen control on touch screens

For the recording of buildings it is important to use low-weight components which support an autonomous way of working.

3.1 Mobile personal computers

On-Site Survey can be used on all mobile personal computers with a Windows operating system:

- tablet PCs
- netbooks
- notebooks

3.1.1 Tablet PCs

Tablet PCs are ideal for on-site work. Devices of the Slate type –without a connected keyboard – are the most suitable. The most effective way to control On-Site Survey 2014 is by using a pen. It is recommended to set the tablet PC exclusively for pen control. Only this mode allows to place the hand on the display without triggering any actions/commands. **More than 90% of the On-Site Survey users work with a tablet-PC.**

3.1.2 Netbooks

Netbooks are small notebooks. Due to missing screens and drives they are lighter, energy-saving and less expensive. The performance parameters of many netbooks are sufficient for the work with On-Site Survey. In practice, only few users use netbooks.

3.1.3 Notebooks

Notebooks are the traditional type of mobile personal computers and are offered in different sizes and with a wide range of performance parameters. Notebooks can be large and heavy. The battery capacity can vary a lot. In practice, only few users use notebooks.

3.2 The mobile systems

The use of a mobile system allows comfortable working when standing and walking. The system of the sixth generation offered from 2014 is ideally suited for the on-site work with On-Site Survey and 12" tablet PCs.



10"tray with netbook



12"tray with tablet PC

The durable cases made of Makrolon can be used for tablet PCs, netbooks and small notebooks with displays ranging from 10" to 12". The cases have been provided with several fixation holes to be directly connected with the snap hooks of the four-point or two-point belts. Fastening strips of silicone and rubber buffers protect the mobile PC during the on-site work. Tray and accessories weigh approx. 0.5 kg – ideal for relaxed working.

3.3 On-Site Survey in mobile use

During the work with On-Site Survey, different technologies are supported and used depending on the hardware.

3.3.1 Control with keyboard and mouse

In the office and in mobile use, On-Site Survey is controlled by keyboard and mouse. On-Site Survey offers shortcuts for frequently used commands and functions. Many dialogs can be controlled by means of the keyboard. Examples for extended keyboard functions are:

- [R] record a rectangular base surface
- [F] record a window
- [T] record a door
- [F3] zoom into the current room (structure)

All shortcuts are described in chapter 9.1.

3.3.2 Pen control

Tablet PCs are often controlled by means of an active pen and do not react to fingers or hands touching the display. The user can place his hand on the display. Thus a precise and relaxed work is ensured. Tablet PCs are always controlled by a pen. For this purpose, On-Site Survey offers an extensive support and automatically adjusts the correct control mode. Commands can be selected via buttons or menus by clicking on the screen using the pen tip.

We recommend to have a spare pen available in order to be able to continue working when you break or lose the pen.

3.3.3 Finger control

Netbooks with touch display can be controlled by fingers and passive pens. Normally, you cannot place the hand on the display, which complicates the precise work. Commands are selected via buttons by touching the corresponding button on the screen with the finger or a pen. Today, devices with such an equipment are not offered anymore.

3.3.4 Acoustic control

Each selected command can be linked with a signal sound. In this way the user receives an audible feedback if, for example, a button has registered the clicking with the mouse/mouse device, finger or pen. On site the acoustic control is more effective than the optical control of the button.

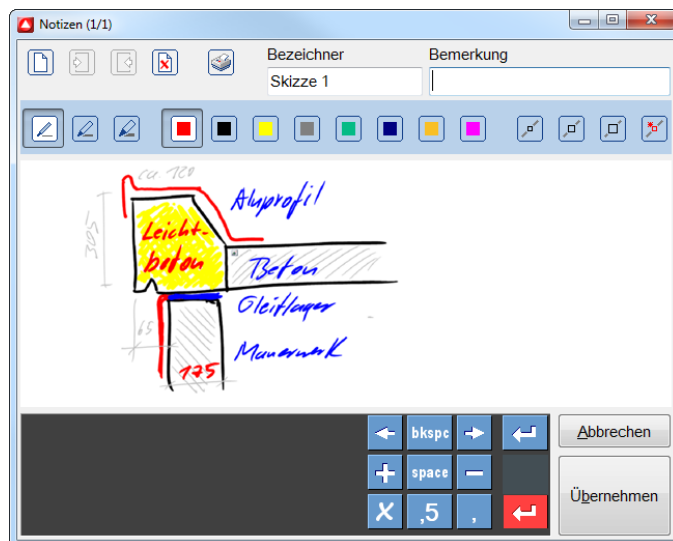
3.3.5 Digital ink

All personal computers equipped with the operating systems Windows Vista, 7, 8.x as well as the edition "XP for tablet PCs" support digital ink. The use of digital ink only makes sense on a tablet PC or a PC with touch display.

Digital ink reacts to the contact pressure of the pen tip, i.e. the line width is bigger if the pressure on the display is higher. Digital ink can save connected lines as an object. Objects can be deleted or modified by one command. Additionally, the storage capacity for sketches with digital ink is smaller than for pictures for example.

3.3.6 Sketching with digital ink

Digital ink allows creating sketches using the pen or finger. Digital ink takes into account the contact pressure of the pen during the sketching. Naturally looking sketches are the result.



3.3.7 Integrated handwriting recognition

Handwritten notes with digital ink can be automatically converted into words and figures using the integrated handwriting recognition. Without any training this handwriting recognition is very reliable and has a high recognition rate.

For a good recognition rate you just need to write from left to right (similar to writing on paper) and use the total writing surface. In case of a small handwriting, the recognition rate becomes worse.



At all necessary positions, On-Site Survey has been provided with fields allowing to enter data directly where inputs are expected. On-Site Survey even increases the reliability of the handwriting recognition as it automatically distinguishes between figures and letters depending on the type of input field.

3.4 Speech output

In order to check program sequences, handwriting recognition, keyboard inputs and measured values of the laser device, On-Site Survey has been provided with a speech output. Reading out designations, field contents and measured values has proven to be an effective tool for mobile work. Practically without looking, the user knows where exactly he is in the program. If, for example, the window dialog is activated by means of the shortcut [F], the window dialog starts and expects the input of the distance between window and a room corner. On-Site Survey reads out the word "distance", and the user can immediately measure the distance. If the measurement is performed using a laser device with Bluetooth interface, On-Site Survey will read out the measured value received, e.g. "three hundred forty five point five", which corresponds to 345.5 cm. Who reads what and how fast – this can be adjusted in the menu **Extra-Settings** and the button **Speech output** – also refer to chapter 2.2.2 Install SAPI 5 speech engine and chapter 4.6.3 Dialog room elements (Disto control).

3.5 Laser measuring devices with Bluetooth interface

Hand laser devices are widely spread for the fast and exact determination of dimensions. Although tape measure and folding rule are indispensable in some situations, most values are measured by means of a hand laser

Working with On-Site Survey becomes particularly effective by using laser devices with a Bluetooth interface. This is due to the safe transfer of measured values without any errors and the high speed. On-Site Survey offers the fastest method for the determination, transfer, assignment and storage of measured values

In addition, the Bluetooth interface offers control functions which accelerate the recording work even more. If the Bluetooth key is pressed twice on the laser device, On-Site Survey automatically switches to the next input field.

On-Site Survey supports all Leica models with Bluetooth interface:

- Leica DISTO plus
- Leica DISTO A6
- Leica DISTO D8
- Leica DISTO D3aBT
- Leica DISTO D810, D110, D510 (from Windows 8.x)

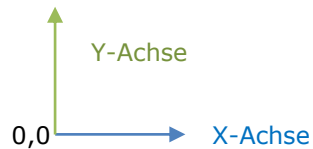
Also refer to chapter 8 Bluetooth laser measuring devices.

3.6 Basic functions

The basic functions describe fundamental methods and concepts used in On-Site Survey.

3.6.1 Coordinate system

On-Site Survey works in a Cartesian coordinate system. The point of origin is on the bottom left, the angle 0° is on the X axis pointing horizontally to the right.



The extension of the coordinate system in world coordinates, i.e. the real dimensions, is displayed by a rectangle. This rectangle can contain a grid. On-Site Survey prevents the user from drawing outside the rectangle. The size is automatically adapted or adjusted in the settings.

3.6.2 Input of points

Points are entered in the form of coordinates. A coordinate consists of two figures, the X value and the Y value. Positive values point to the right and upwards. The possibilities for the input of points are identical for each drawing element.

The first point always refers to the origin of the drawing area on the bottom left (absolute reference). Each additional point refers to the point set before (relative reference)

When the free polygon function has been started, these points are entered and a triangle is constructed (input in cm, figures separated by blanks):

Input **100 100**

The first point of the triangle is located one meter from the origin of the drawing surface.

Input **200 0**

The second point of the triangle is located 2m to the right from the first point.

Input - **100 200**

The third point is located one meter to the left and two meters upwards from the second point.

Input - **100 -200**

The fourth point is located on the first point. The triangle is closed.



Points can also be entered when drawing elements are edited (shifting, mirroring and scaling).

3.7 Snap functions

The input of elements is extended by snap functions on existing elements. The snap functions recognize significant points and show them in a dynamic preview. At a click, the point indicated in the dynamic preview is snapped and used as input. The radius in which On-Site Survey snaps a point is defined in the settings.

Snap on end point	<input type="checkbox"/>	Snap on central point	<input type="checkbox"/>
Snap on next point	<input type="checkbox"/>	Perpendicular snap	<input type="checkbox"/>

The program can also snap on the intersection points of auxiliary lines and the quadrants of circles (display identical to end point).

3.8 Mouse control

On-Site Survey is provided with a comfortable mouse control:

- The left mouse button allows selecting commands, to draw within the working surface and to select elements.
- By scrolling the mouse wheel the image section is increased or reduced depending on the scrolling direction.



By pressing and holding the mouse wheel the image section can be moved. It can also be moved using the right mouse button of an active **pen**



- A double-click on the mouse wheel shows the total work area.

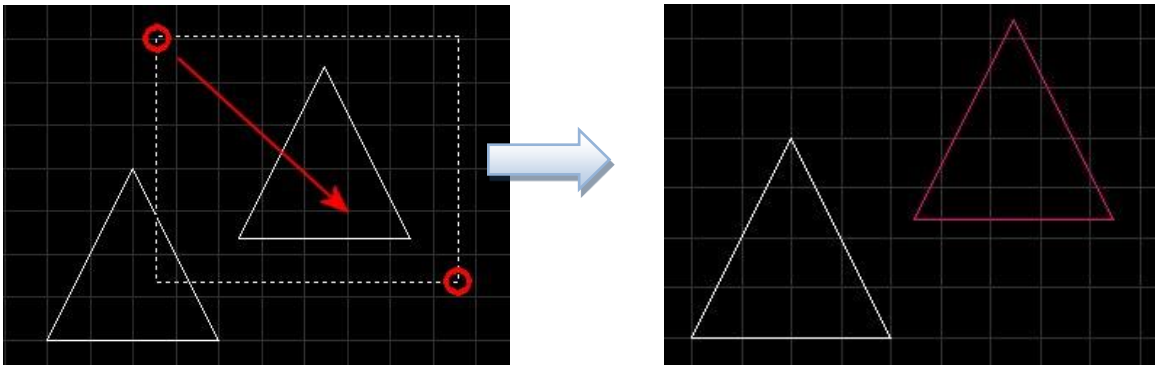
3.9 Select elements

The selection of elements is necessary in order to edit the chosen elements.

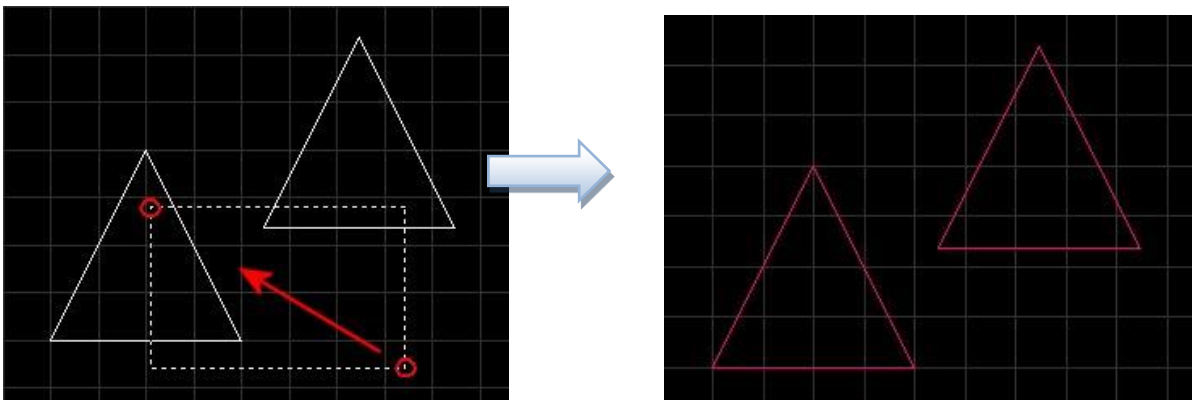
Elements are selected by clicking with the mouse and/or the pen. This method only allows to select one element. By pressing and holding the CTRL at the moment you click, several elements can be selected on a notebook or PC.

For pen control, multiple selection can be activated in the menu **Edit – Multiple selection**. In case of activated multiple selection, click on the individual elements to be selected. Already selected elements remain selected. An already selected element is deselected.

An easier method is the selection in a section. Click on the first point of the section and draw open a rectangular section with the left mouse button pressed or using the pen. If the section is drawn open from the left to the right, all elements completely situated in the section will be selected:

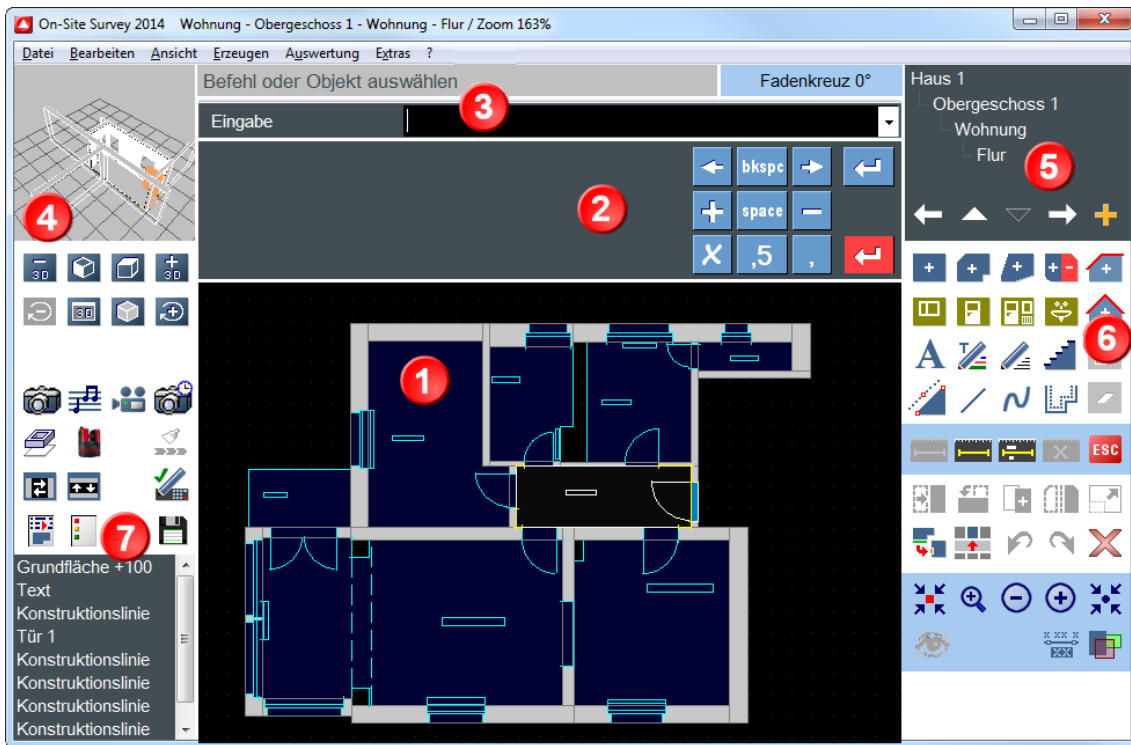


If the section is drawn open from the right to the left, all elements in contact with the section will be selected:

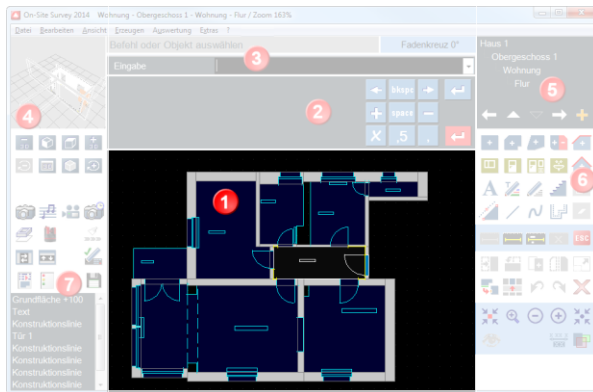


4 Systematic program description

The systematic program description allows to look up functions and functional areas based on the software's main window. For a better clarity, the user interface has been split into 7 areas.



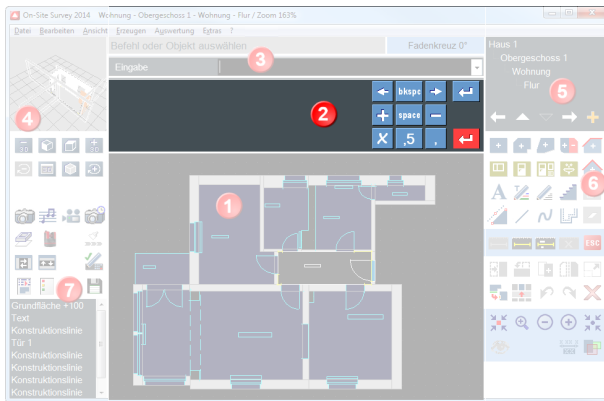
4.1 The drawing surface



The drawing surface displays the ground plans of the recorded buildings. The display control is performed in these areas:

- Program settings
- Template management
- Mode fillings on/off

4.2 The writing area



The writing area is used at several times in the program and allows to enter texts or figures. Handwritten inputs are made with digital ink in the grey zone of the writing area. The handwriting recognition starts after a click on the corresponding buttons. The buttons arranged on the left or right of the writing area have the following functions:



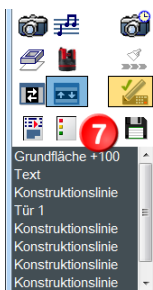
First row cursor in input field one position to the left
 delete character on the left of the cursor
 cursor in input field one position to the right
Enter – start the handwriting recognition of the writing area

Second row insert the character plus "+" in the input field
 insert blanks in the input field
 insert the character minus "-" in the input field

Third row delete writing area without handwriting recognition
 insert character comma five ",5" in the input field
 insert character comma "," in the input field
Enter – start handwriting recognition of the writing area and press **[ENTER]**

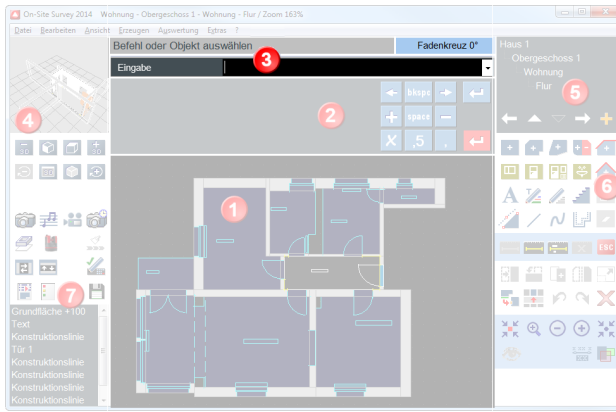
The "blue" Enter starts the handwriting recognition and transmits the result into the input field. The "red" Enter additionally switches to the next input field. Use the "red" Enter for an effective work.

The display and position of the writing area is controlled by the following buttons:



Blue marking Switch the position of the writing area between top and bottom
 Yellow marking Set writing area visible/invisible

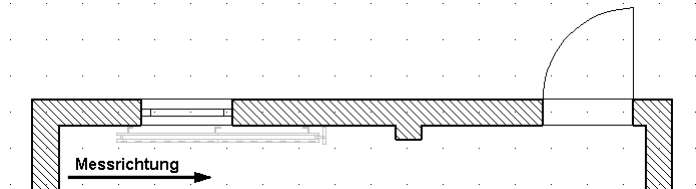
4.3 Input line and status area



The input line allows to enter measured values. Measured values can be entered using the keyboard, the writing area or the laser device with Bluetooth interface. All kinds of input can be mixed.

The input line processes measured values, points or value chains.

A measured value is a series of numbers, e.g. 745.5. Points are coordinates separated by blanks, e.g. 150 450. Value chains contain all vertical measures and distances in one line:



This situation can, for example, be represented by the following value chain:

80.5 114.5 +126 +130 466 +36 813.5 -17 -126

Signed measured values always refer to prior measured values. Unsigned measured values refer to the starting point of the value chain.

Value chains are rarely used because On-Site Survey 2014 offers easier and more flexible recording methods.



A button at the right of the input area opens the measured value history which saves the last 10 measured values/value chains.



A status bar is located above the input line. The status bar displays program messages which support the user during his work. After the selection of a command, the status bar indicates which inputs are expected by the program and which shortcuts can be used at the moment. Especially during the On-Site Survey training phase we recommend to read the messages in the status bar.

At the right of the status bar, the current cross hairs angle is shown. When working in inclined building parts it can be advantageous to rotate the coordinate system. After the program start, the cross hairs are at 0° and thus are identical with the coordinate system. The standard cursor appears on the drawing surface.

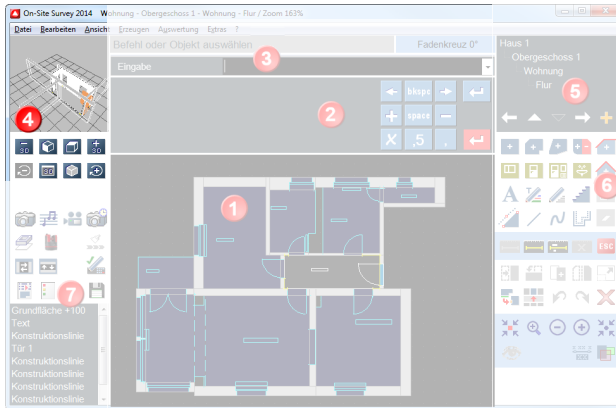
The rotation of the cross hairs is set by a click on this display, which at the same time is a button:



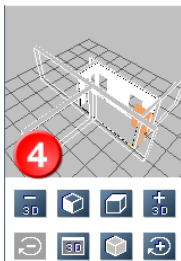
The rotation angle is entered or taken from the drawing surface by clicking on two points. The rotated cross hairs are displayed with continuous lines. The new X axis is light blue. The cross hairs also allow to rotate the coordinate system, i.e. all entered points and drawing functions take into account the rotated coordinate system.

By clicking again on the display of the cross hairs angle, the rotated cross hairs/coordinate system are back in their initial position (0°).





4.4 3D preview








The 3D preview enables a visual check of the recording work. Due to the visual check, incorrect values, in particular incorrect heights are immediately visible. The buttons have the following functions:



First row

-  reduce 3D preview by one step
-  set view left – front – top
-  set top view
-  enlarge 3D preview by one step

Second row

-  3D preview auto rotation slower/off
-  preview full screen 3D view 
-  preview display mode surface/wire frame grid
-  3D preview auto rotation faster

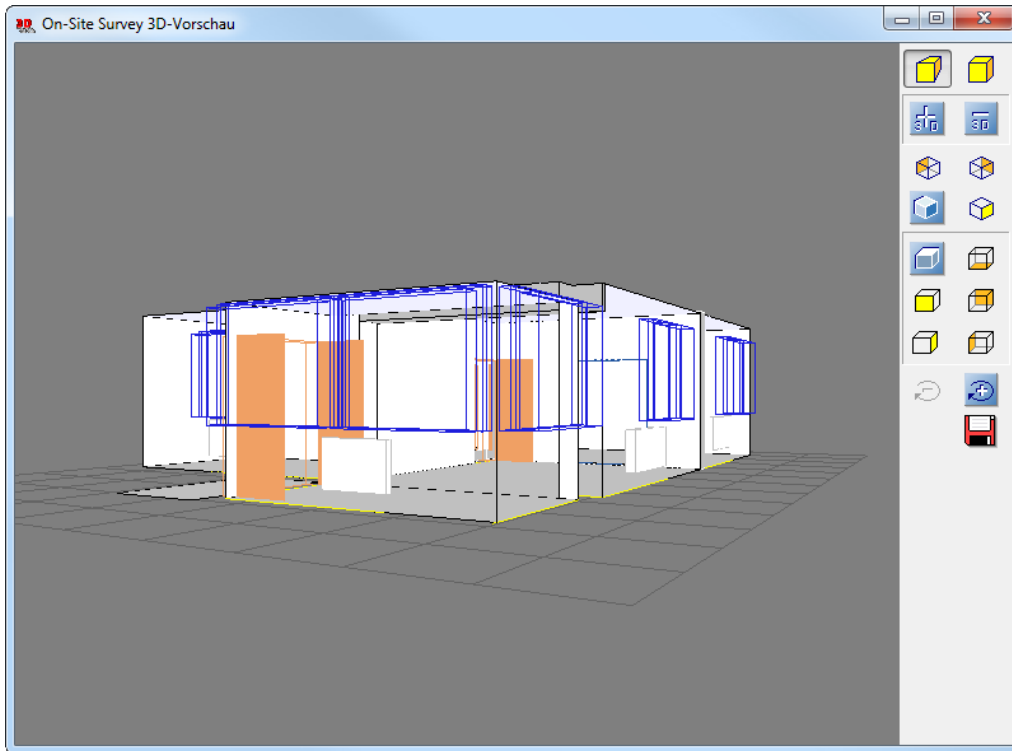
The 3D preview is automatically refreshed with each action. Selected elements are displayed in the selection color.

The following actions can be performed in the 3D preview using mouse or pen:

- mouse wheel zoom in and out depending on rotating direction
- left mouse button “touch” 3D preview and tip it in all directions
- right mouse button move 3D preview in all directions

4.4.1 3D preview full screen P

A click on the button opens a new window with an enlarged 3D preview.



The buttons have the following functions:

- left row**
- perspective projection
 - enlarge 3D preview by one step*
 - view from rear left
 - front view from left
 - top view
 - front view
 - view from right
 - 3D preview auto rotation slower/off

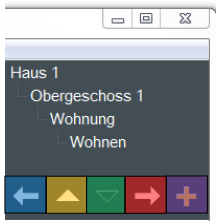
- right row**
- orthogonal projection
 - reduce 3D preview by one step*
 - view from rear right
 - front view from right
 - bottom view
 - rear view
 - view from left
 - 3D preview auto rotation faster
 - save 3D preview**

* automatic repetition mode when pen/mouse remains pressed

**The current view is saved as an image in the *.BMP format

The possible actions using mouse and pen in the 3D preview correspond to those described in the previous section.

5 Project display and project management



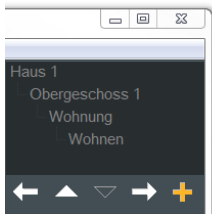
The project display serves as display and button for the activation of the project management. The current position in the project structure is shown. The lower row contains the following buttons:

- previous element of this layer ■
- switch one layer upwards ■
- switch one layer downwards ■
- subsequent element of this layer ■
- start dialog new room ■

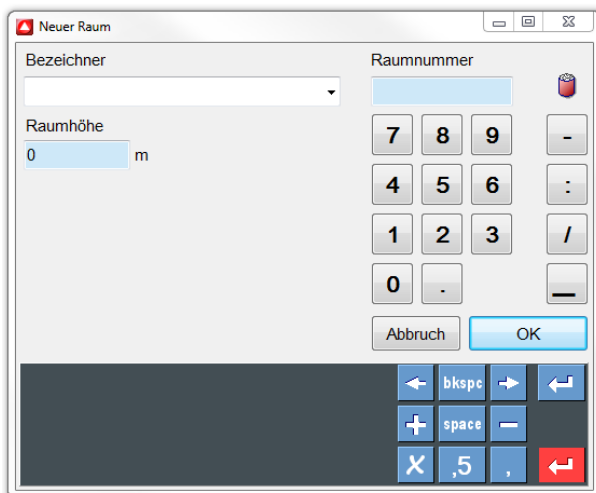
The first four buttons allow a “quick navigation” through the project without the need to start the project management dialog.

The screenshot shows that the user is currently in the “living room” of the “flat” in the “upper floor 1” of the building “Haus 1”. By clicking on the arrow key to the left, On-Site Survey switches to the previously recorded room. The arrow key upwards allows to move in the structure to the left flat. Now the user can switch between the flats in this layer.

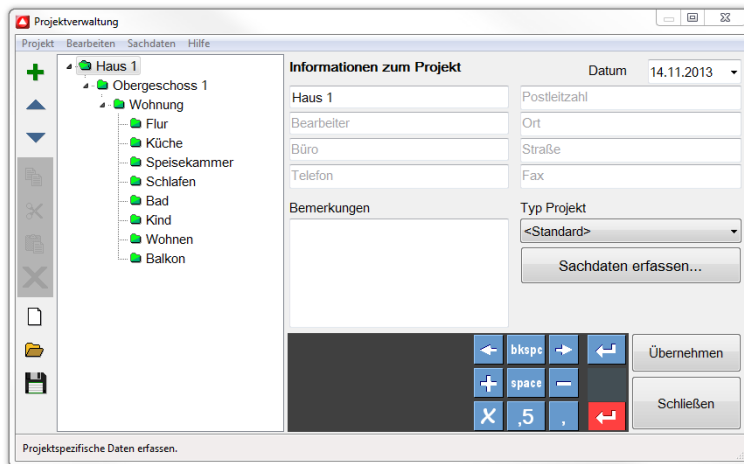
On-Site Survey automatically zooms to the selected structure (depending on program settings). A click on the project display will start the project management.



Click on the button + to open the dialog for entering a new room.



5.1.1 Project management



On-Site Survey uses a fixed project structure designed for the recording of buildings. The project structure has three levels and is divided into **storeys**, **areas** and **rooms**.

We recommend to use the project structure as intended in order to get meaningful results based on the structure-related functions for controlling, utilizing and exporting projects.

The current location in the project is displayed with a colored background. On the right side you can enter additional information or data. On the left side the project structure is shown as a tree. The structures can be collapsed or expanded by clicking on the triangles.

The menu point **Edit** or a click with the right mouse button into the tree structure allow to display all storeys/areas or rooms.

The buttons on the left side have the following functions (from top to bottom):

- This button extends the project structure by an element located hierarchically below. If you are in the structure building, a new storey will be created. In the storey a new area and in the area a new room is generated. You can also create structures using the short key **[+]**.
- The selected element is moved one position upwards in the structure. *
- The selected element is moved one position downwards in the structure.*
 - * This sorting function takes into account the project structure, i.e. a room can only be moved within the storey and the area.
- copy selected structure *
- cut out selected structure
- Insert copied or cut out structure. The project structure is taken into account, i.e. rooms can only be inserted in areas.
- The selected structure is deleted. All subordinate elements are also deleted. If, for example, a storey is selected, the areas and rooms of this storey will also be deleted. **You cannot undo this action. Therefore, you will be explicitly asked before the deletion.**
- create new project
- load project, shortcut **[O]**
- save project
 - Save as can be found in the menu – file

*If On-Site Survey is not closed between the copying from one project and the insertion into another project, it is possible to change data between projects in this way. This function allows to measure a building with several teams and to unite the results in one project.

Depending on the position in the project structure, the data appropriate for the structure are shown on the right side of the dialog:

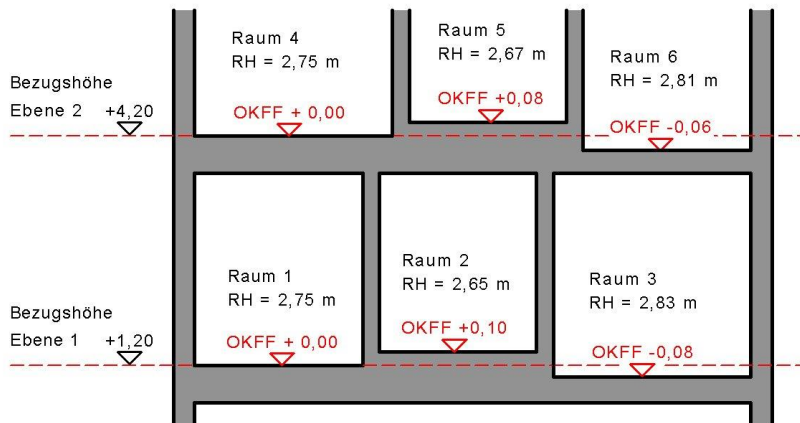
Structure building

In the building, general project information and additional data (in the lower area) can be found. Additional data can be configured by the user. The work with additional data is described in a separate chapter.

Structure storey

Storeys unite areas and represent the ground plan of a storey. The storey's **identifier** is manually entered. It is also possible to select a name of a predefined list.

In the project, **walls** (see chapter 5) are assigned to a storey. The basic **wall height** is defined in the project management. The initial value of 2.75 m is overwritten by the real measured value. Each storey can contain a **reference height**. The reference height is an absolute value and refers to a defined zero point within the building.



Structure area

Areas unite rooms to units. Areas can be flats or offices. Areas are created in order to structure the reports. In the reports, sums of the areas are automatically calculated, e.g. to determine the area of the flats.

Structure room

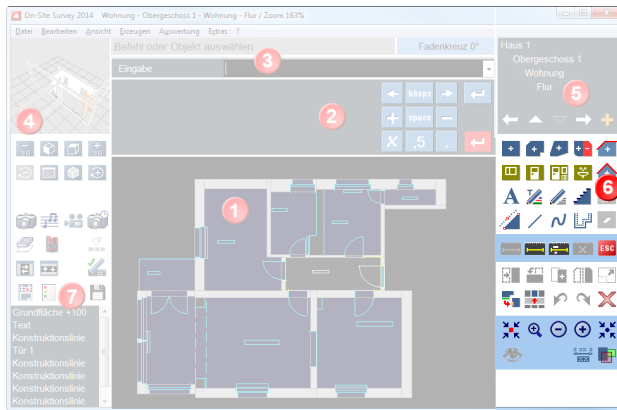
A **room** can be exactly defined by entering a **room name** and a **room number**.

The **room height** is the default value for the heights of the base surfaces in the room. The initial value of 2.75 m is overwritten by the real measured value. In the field **UEF** (upper edge floor) a height offset of the room with regard to the storey height can be entered.

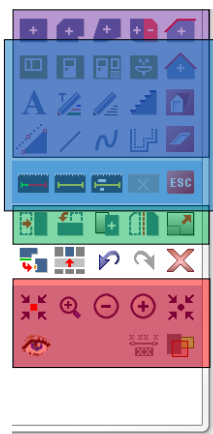
The **kinds of use of the rooms** appear in the room book.

A list of **room types** can be defined in the additional data. Within the additional data list, a click on the button [...] allows to enter type-specific data.

5.2 Functional group 1



This area comprises the functions frequently used on site for the recording of buildings.



The white areas serve as optical separators for the following functional groups:

- generate elements
- measurement functions / simulate ESC
- change elements
- service functions
- zoom functions

5.2.1 Generate elements



First row

- rectangle (base surfaces)
- polygon with fixed angles (base surfaces)
- polygon with free angles (base surfaces)
- base surfaces

one-sided pitched roof (base surfaces)

Second row

- window
- door
- room elements
- library elements
- gable roof (base surfaces)

Third row text
sketch
free hand line
stair
roof dormer

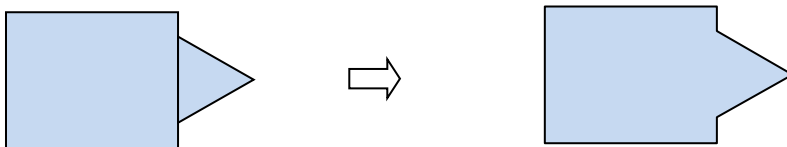
Fourth row auxiliary line
line
spline line
double line
dormer window

5.2.2 Base surfaces

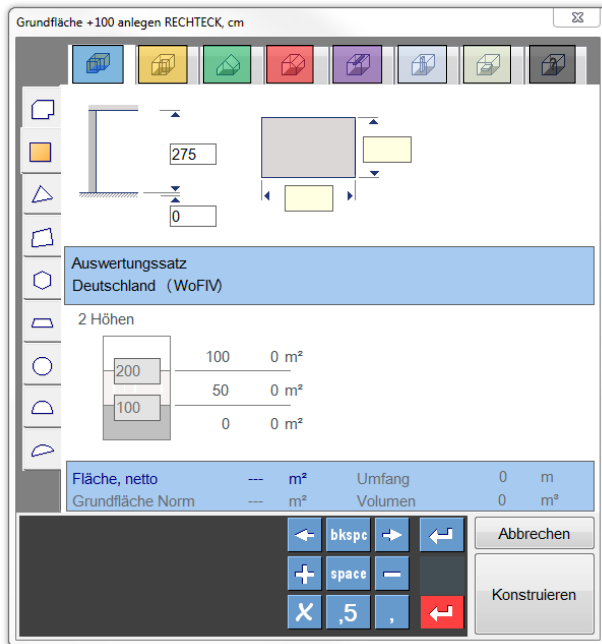
Base surfaces are the elementary drawing objects for measuring ground plans in On-Site Survey. Ground plans can exist of one base surface or several base surfaces:



Thanks to this flexibility, On-Site Survey is able to record any ground plan situation. Outside the structure room, composed base surfaces of the same type are automatically calculated. The area and circumference are determined:



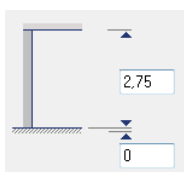
The button displayed in green starts the base surface dialog with all surface forms and surface types.



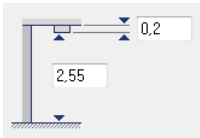
The base surface dialog comprises eight base surface types. The buttons in the upper row have the following functions:

- • base surface +100 %
 - surface to be added
 - • base surface -100%
 - surface to be deducted
 - • gable roof
 - This type can only be used with the shape rectangle
 - • one-sided pitched roof
 - This type can only be used with the shape rectangle
 - • beam
 - This type has no influence on the area balance
 - • support
 - The contact area is deducted (100%)
 - • platform
 - This type has no influence on the area balance
 - • further surface types
- List of surface types rarely used:
- stair opening (-100%)
 - projection (-100%)
 - auxiliary construction (no influence)
 - step (no influence)
 - balcony (+50%)
 - base surface (-50%)

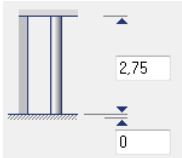
Individual height values can be assigned to each base surface. The height values of the project management are transferred into the input fields as initial values:



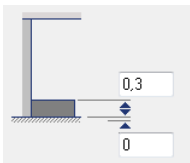
Basic height and height are entered for the base surface types addition, deduction and "further surface types".



For the base surface type beam, either the distance from the floor or the height of the beam are to be entered.

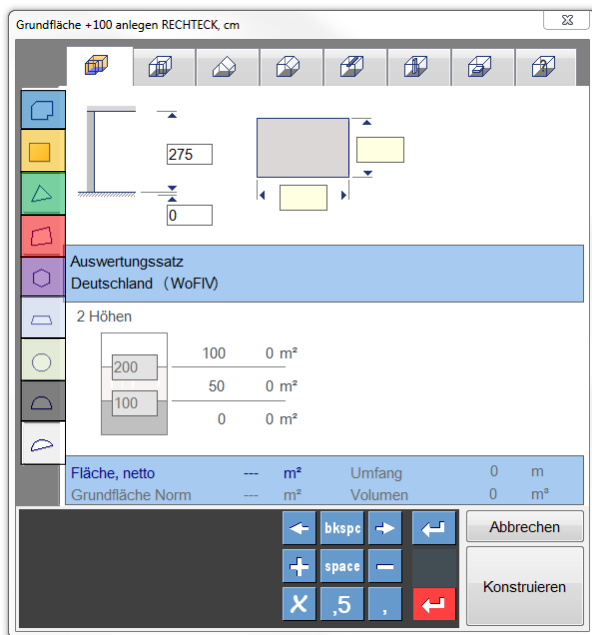


Basic height and height are the input values for the base surface type support.



The base surface type platform is determined by the basic height and the platform height.

Gable roof and one-sided pitched roof have own dialogs which are described separately.



A Buttons for the selection of geometric forms are on the left side:

- • sketch and measure
- • rectangle
- • triangle
- • quadrangle
- • N-angle
- • trapeze
- • circle
- • half-circle
- • arc

Circumference, area and volume of the current surface are displayed in grey in the lower area. If the surface has not been measured yet, zeros are displayed.

Due to the combination of base surface types and base surface forms, On-Site Survey offers a wide variety of survey elements.

The base surface forms

- sketch and measure
- triangle
- quadrangle
- arc

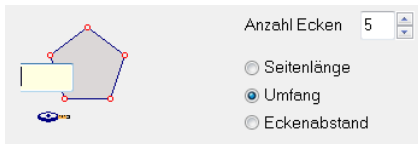
are measured by constructing on the drawing surface. The base surface forms

- N-angle
- trapeze
- circle
- half-circle

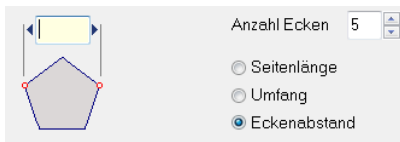
are measured by parameters. Each surface form provides different proven measuring methods. The diameter of a round support can, for example, be easily measured using a measuring tape. Depending on the selected measuring method, the representation in the dialog will change, e.g. for the N-angle:



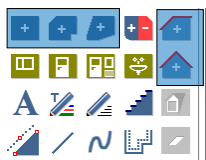
Measuring method 1: Measure the length of a side



Measuring method 2: Measure the circumference using a measuring tape



Measuring method 3: Measure the corner distance



The buttons displayed in blue start the base surface dialog with selected base surfaces. In this dialog, only the features appropriate for the base surface forms or base surface types are shown.

5.2.2.1 Rectangle



shortcut **[R]**

The rectangle is the base surface which is most frequently used. For the rectangle, the dimensions length and width are entered. Then the rectangle is placed on the drawing surface using the command **[Place]**. The insertion point is the lower left corner.

In addition you have the possibility to construct the rectangle by clicking on **[Construct]**.

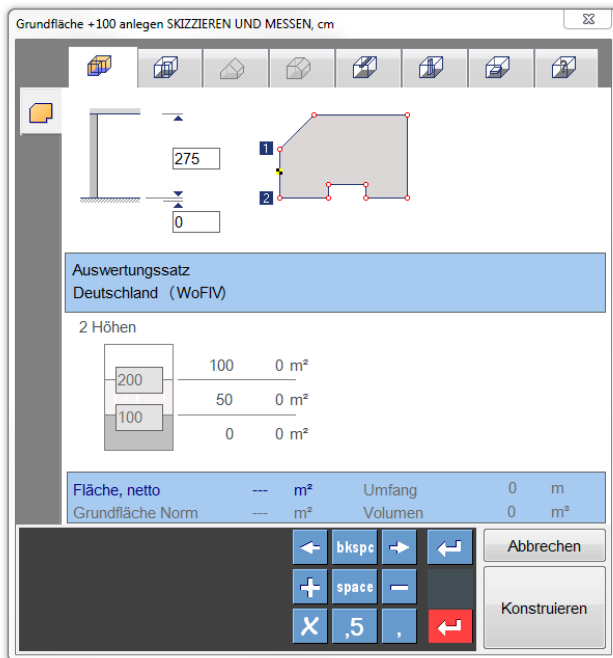
Rectangles can be constructed by clicking on three points.

The first two points are the basis of the rectangle. For the third point, you can click on any point or enter a value for the rectangle width. If the value entered is positive, the rectangle develops anticlockwise. In case of a negative, value the rectangle is constructed in clockwise direction.

5.2.2.2 Polygon with angles of 45°/90°

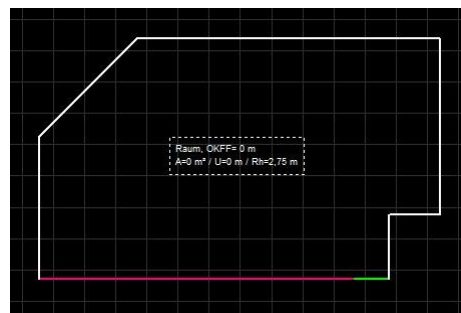
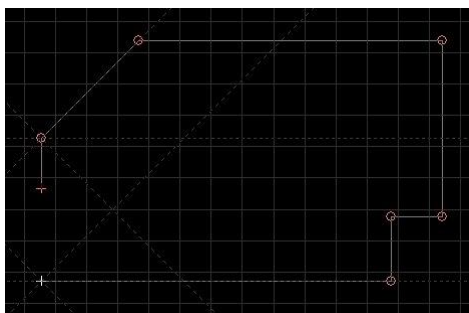


The polygon corresponds to the familiar work method "sketch and measure". Right after the rectangle, it is the easiest and fastest method to measure ground plans.



The base surface dialog is closed by a click on **[Construct]**. The polygon is sketched on the drawing surface by means of click points. The sketch function can only draw in the angles 90° and 45°.

After clicking on the starting point of the polygon, the contour is closed. On-Site Survey automatically switches into the measurement mode.



Due to the fixed angles, only a few measured values are required for finishing the survey of this surface.

If necessary, the polygon with fixed angle can be converted into a polygon with free angles. In this case, additional measured values are required.

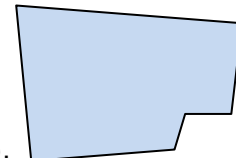
5.2.2.3 Free polygon



The free polygon is sketched on the drawing surface by means of click points. The click points can be arbitrarily set. After clicking on the starting point of the polygon, the polygon is closed. On-Site Survey automatically switches into the measurement mode.

This base surface type is selected, if the ground plan is obviously skew, and the diagonals are to be measured in any case. For a free polygon, more measured values are required for the geometric construction (clearly determined). The number of measured values required can be calculated using the following formula:

$$\text{Number of measured values} = (\text{number of polygon corners}) \times 2 - 3$$



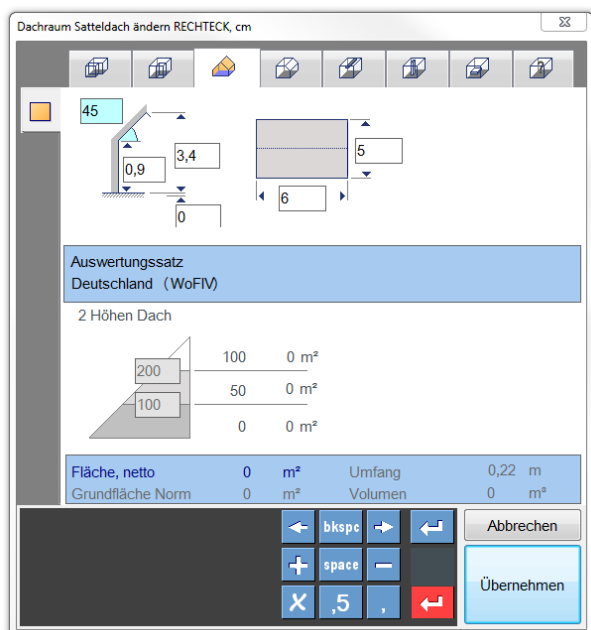
This free polygon with 6 corners requires 9 measured values ($2 \times 6 - 3 = 9$).

Measure first all edges (walls) in a free polygon before assigning measured values to the diagonals.

5.2.2.4 Gable roof and one-sided pitched roof



These base surface types can only be used with the rectangle. When all required parameters have been entered, the base surface is inserted in the drawing surface by the command Place.



This dialog contains all parameters. If the boxes "Surface (deduction)" have been ticked under the button **Utilizations** in the menu **Extras-Settings**, surface deductions [e.g. for Germany according to the German Residential Space Ordinance (WoFIV)] or according to a defined utilization set will be shown.

5.2.3 Dialog room elements

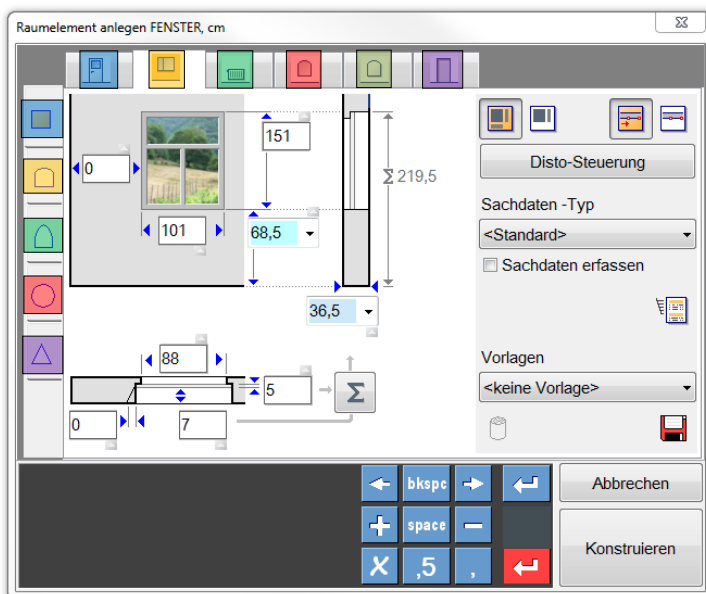
In On-Site Survey, windows, doors, heaters, niches and passages are called room elements.



The button displayed in blue starts the dialog for recording windows (shortcut **[F]**), the button in yellow the dialog for recording doors (shortcut **[T]**). These room elements are frequently used.

Therefore separate buttons are provided.

The button displayed in green starts the dialog with all input functions:



The upper row contains the following room element types (from left to right)

- • door
- • window
- • heater
- • niche
- • recess
- • passage

The tabs for the element forms are shown on the left (from top to bottom):

- • rectangle
- • arched rectangle
- • pointed arch
- • circle
- • triangle

The number of element forms varies depending on the element type. For the door, for example, the forms rectangle and arched rectangle are available.

The right upper area comprises functions for the control of the dialog:

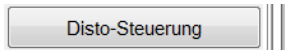


The first two buttons switch the extended measurement mode on or off. These buttons are only offered for the element type window.

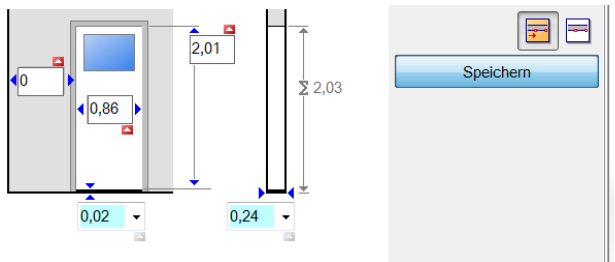
The two following buttons control the insertion method for room elements. The standard method is the input of distance and width.

Alternatively, distance and width can be determined on the drawing surface by clicking on snap points. This method only makes sense if value chains are used. The current versions do not use value chains as better methods exist.

Below these buttons, the button for the Disto control is located:



A click on this button will activate the input fields for room elements which are especially suitable for Disto Bluetooth laser recording. These are, for example, the fields: wall distance, door/window width, door/window height:

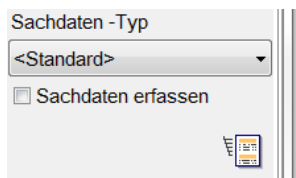


You activate the input fields by clicking on the small grey symbol directly above or below the input field. The red symbol indicates that this input field has been activated for laser detection. A click on the right button Save will save these settings, however, they can be changed, if required.

An advantage of this setting is that you can directly measure and record using the laser after opening the room element dialog. After pressing the Bluetooth key at the laser device, the value is transferred into the input field. When you press the Bluetooth key again, the next input field is active. When all input fields have been successfully filled, the focus is on the button Construct. Now you can use the pen to click into the fields to be recorded additionally, in case they differ from the standard values.

In addition to this recording method, it is recommended to activate the check boxes "Speech output", "Measured value laser", "Caption of active field", in the menu **Extras-Settings** below the button **Speech output**. The field names and measured laser values will then be emitted. It is also announced when the focus is on the button Construct so that other input fields can be activated and filled using the pen or a selection from the combo box is to be made.

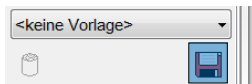
Apart from that, the values can also be entered by pen via the handwriting recognition, in case the Disto control has been activated. The red Enter will transmit the value and the focus will then be on the next active input field. Also in this case, the values and field names are announced if the speech output is active.



The button Additional data type allows to select a room element for recording additional data. The check box Record additional data allows to open the dialog for additional data recording directly after the completion of the room element. In addition, a dialog for recording additional data can be opened for each room element, if required, by clicking on the corresponding symbol.



The input fields with blue background and a triangle pointing downwards allow to enter measured values or to select them from a list. For the selection from a list, open the list by clicking on the arrow or by pressing the cursor keys up/down. A newly entered measured value is automatically transferred to the list of measured values. You can leave all input field for measured values using the **[Enter]** key. You will automatically switch to the next input field or button.



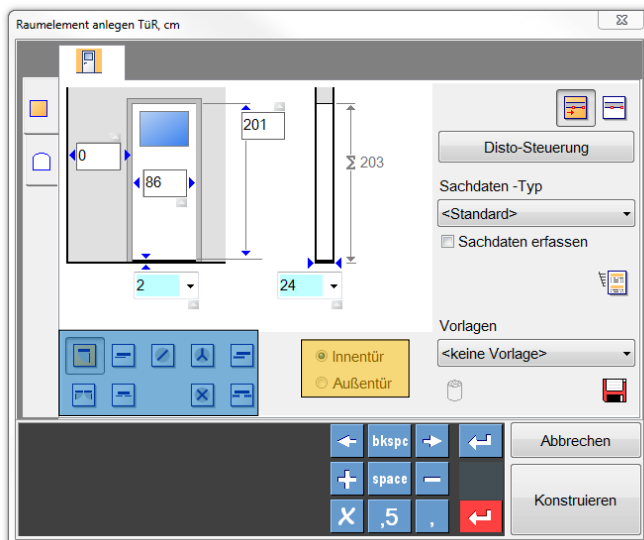
The current room element can be saved with all measured values in the lower right area. The room element is provided with a name and can be used again by selecting it from the template list.

A template can be deleted.

You insert room elements automatically by clicking on the reference point, e.g. a room corner, and the wall side. On-Site Survey 2014 automatically calculates the positioning side of some room elements, e.g. windows as the position of the wall side is known.

Depending on the room element type, the dialogs have different buttons and sequences for the insertion in the drawing surface:

5.2.3.1 Door [T]



The rectangle displayed in blue contains buttons for selecting the kinds of door and different door leaves. Each kind of door is indicated by a different sketch:

- Swing door
 - one leaf
 - two leaves
- Sliding door
 - one leaf
 - two leaves
- Revolving door

- two leaves
- three leaves
- four leaves
- Folding door
 - one leaf
 - two leaves

The rectangle displayed in yellow shows the options inner door/outer door. This option is only available for swing doors.

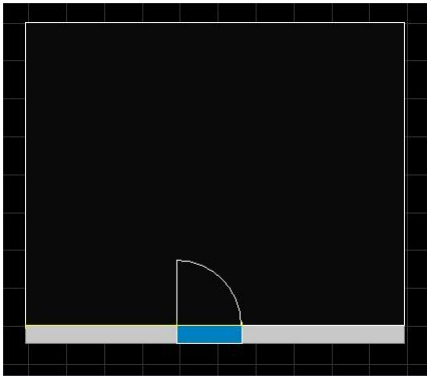


Figure inner door

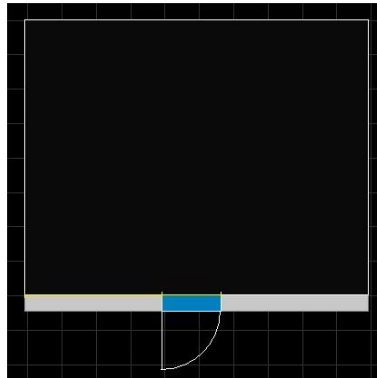
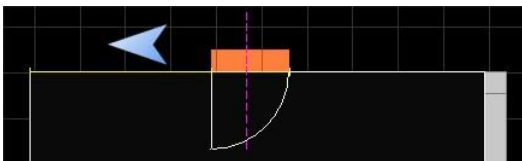


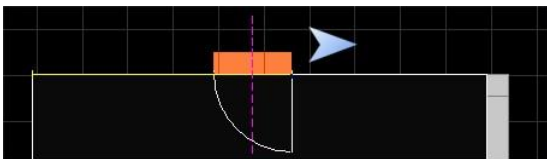
Figure outer door

In On-Site Survey, doors are always positioned in the room towards which they open. Exceptions are swing doors with the option "outer door". These doors are outer doors of buildings.

For one-leaf doors, it is necessary after the positioning (second click) to click a third time in order to determine the door stop.

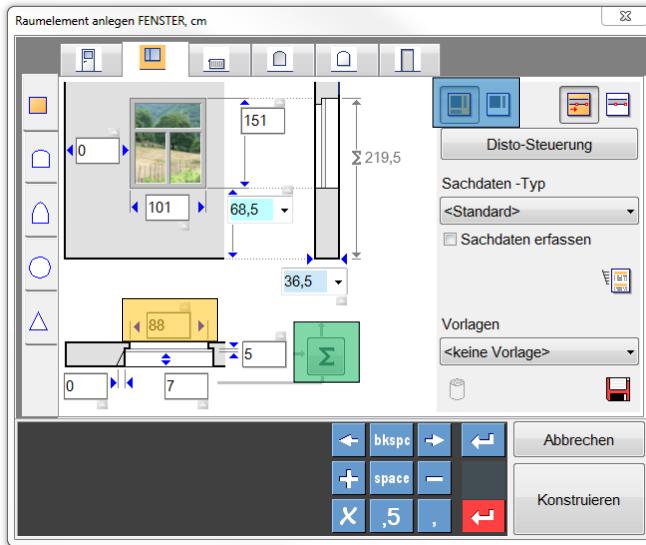


The door stop is set on the left side if the cursor (blue arrow) is situated on the left of the imaginary centre line of the door (dashed line in magenta).

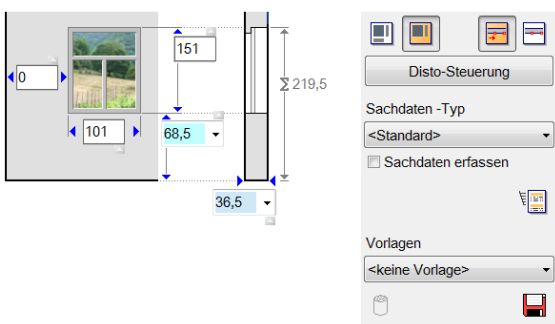


The door stop is set on the right side if the cursor (blue arrow) is situated on the right of the imaginary centre line of the door (dashed line in magenta).

5.2.3.2 Window [F]



The rectangle displayed in blue allows to set the detail depth for recording measured values of windows. The "extended measurement mode" with all measured values is shown. The following figure is displayed when the "normal measurement mode" is activated.

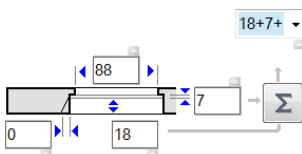


The rectangle in yellow shows the measured values for the width "outside". This value does not have to be entered. It is the result of the width "inside" minus a preset default value for the width of the window stops of 13cm = 6.5 cm stop width per window side.

If the width "outside" is changed, you will receive a new stop width. On-Site Survey will use this new stop width as the new default value. An example:

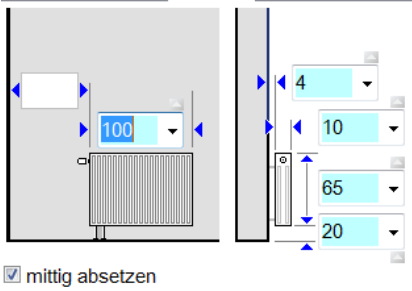
Default setting: window width outside = 141cm > window width inside = 128 cm (-13 cm)
 Change: window width outside = 141cm > window width inside = enter 121 cm
 >From now on, the stop width is 10cm at each side = -20cm.

The rectangle in green displays the button for transferring the measured values stop depth and frame thickness to the wall thickness:



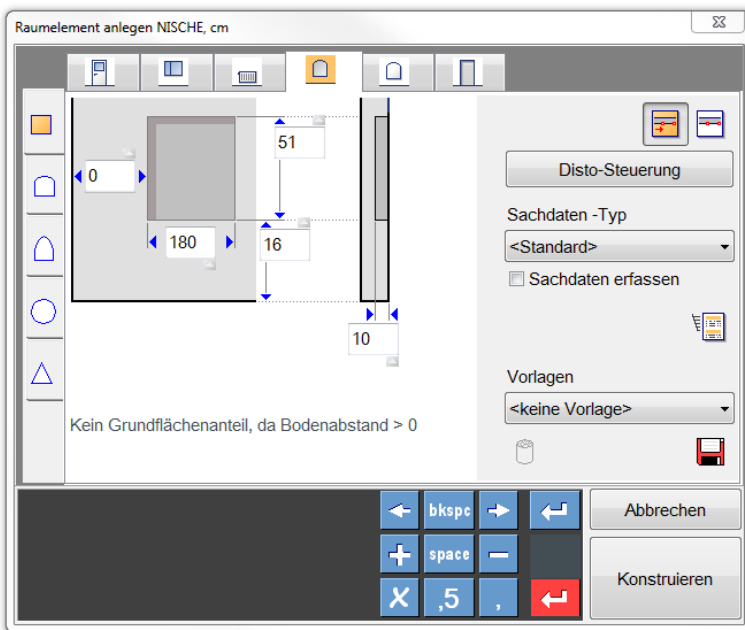
In this example, the stop depth (18cm) and the frame thickness (7cm) is transferred to the field wall thickness by a click on the button. You can enter further values in the field wall thickness. On-Site Survey will calculate the resulting wall thickness when you leave the input field.

5.2.3.3 Heater [H]



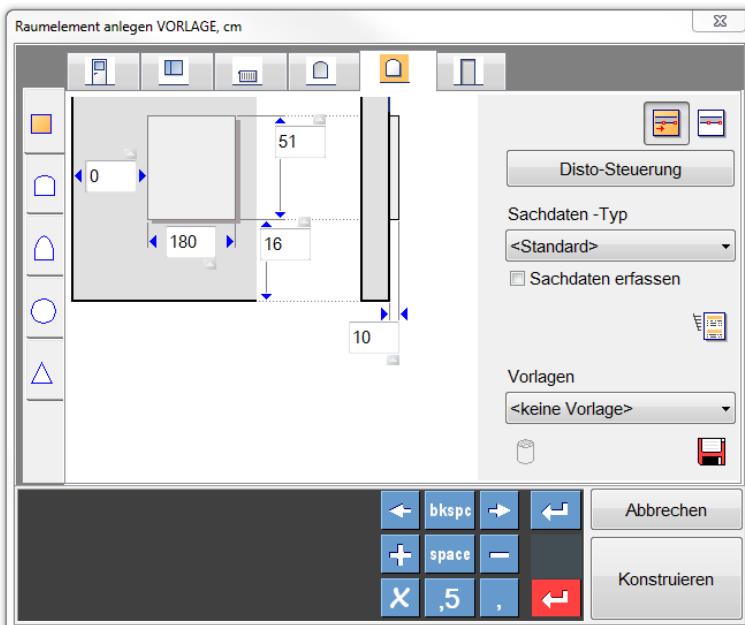
Heaters are very often located centrally below windows. When you have selected the option „position centrally“, click on two points. The heater will be positioned centrally between the two click points. On-Site Survey automatically determines the wall side.

5.2.3.4 Nische



Depending on the selection, room elements are created as niche or recess on the wall.

5.2.3.5 Wall recess



5.2.3.6 Passage

Passages are room elements connecting rooms without doors.

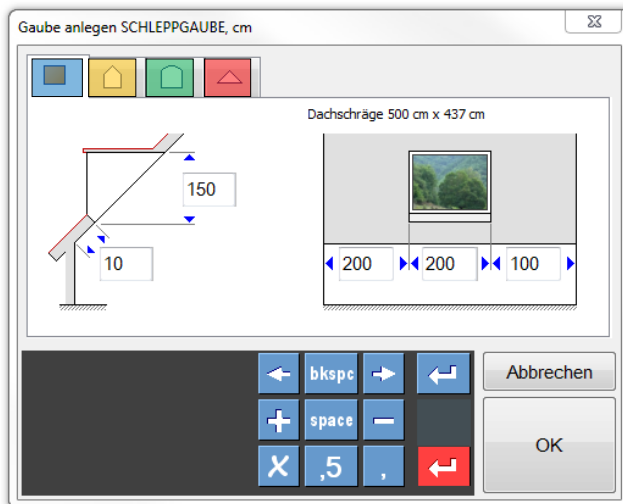
5.2.3.7 Roof dormer







The button roof dormer can only be selected if the room contains at least one base surface of the type saddleback roof or one-sided pitched roof. If a one-sided pitched roof is in the room, On-Site Survey will automatically recognize the allocation as roof dormers can only be saved for one room side.

In case of a saddleback roof or several roof base surfaces, On-Site Survey will ask you to click on the desired room side. The selectable room sides are highlighted with a thick green line when the mouse cursor moves over it.

After the selection of the room side, the dialog "Create dormer" will start:



The upper row allows to select the following dormer forms:

-  • shed dormer
-  • saddleback dormer
-  • barrel-shaped roof dormer
-  • pointed dormer

For each dormer form, individual parameters are required. If all parameters have been entered, click on **[OK]** to leave the dialog and place the dormer.

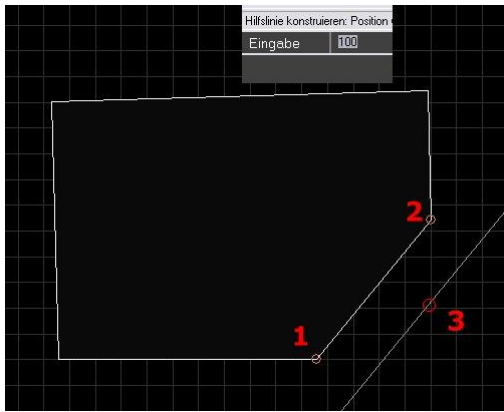
5.2.3.8 Auxiliary lines



Auxiliary lines support the construction in On-Site Survey. Auxiliary lines stretch across the whole drawing surface and form snap points at intersection points.

Auxiliary lines are defined by three points. The first two points determine the reference line, the third one the distance from this reference line. You can either click on the distance or enter it.

In this way, parallels can easily be constructed with regard to existing edges.



For the deletion of all auxiliary lines, the command "delete auxiliary lines" is provided in the menu **Edit**.

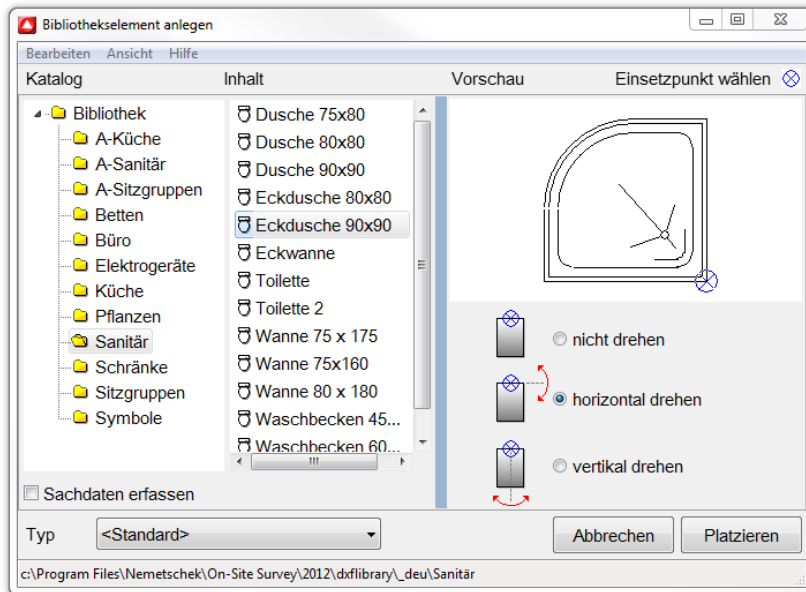
5.2.3.9 Line

A line is a drawing element generated in a room and shown in all structure layers.

5.2.3.10 Library



On-Site Survey offers a library which allows to insert frequently occurring graphical objects in rooms. The On-Site Survey library consists of a collection of DXF files.



Library elements can be chosen in a catalogue. You can see the content of the catalogue by clicking on the catalogue entry (left side). The library element is shown by a click on the element list (center).

For the library element (right), the insertion point can be chosen (blue circle with cross). The positioning direction (bottom right) horizontal or vertical is another insertion option.

When you have pressed the button **[Place]** a dashed rectangle with the maximum dimensions of the library symbol is displayed at the mouse cursor.

Click on the drawing surface to place the symbol on the insertion point. A temporary line cross appears at the insertion point. It allows to determine the sense of rotation.

You can expand the library by inserting DXF files in existing or new folders in the path “..\On-Site Survey\dxflibrary_deu”.

Changes within the library are refreshed by a click on the button **[Update]** and/or at a program restart.

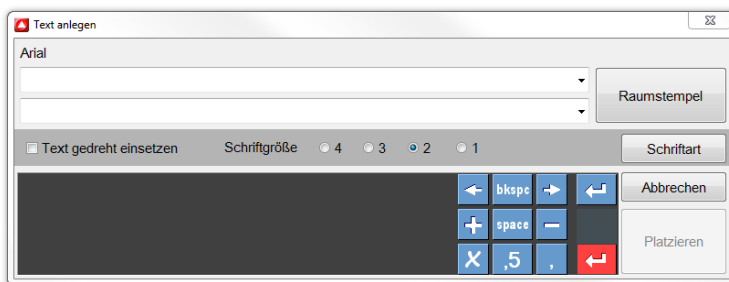
Additional data can be attached to each library element. The additional data are specified in the settings and the additional data configuration.

5.2.3.11 Text



The text button allows to insert a two-line text in the drawing surface. The text can have different contents:

- Freely entered text
- Choose text from text templates
- Create room stamp.



Free text is entered using the keyboard or the input field of the handwriting recognition. **Text from text templates** is selected by a click on the triangle pointing downwards. The text templates can be adjusted in the program settings.

The room stamp comprises the most important room information. The room stamp contains the room designation as well as the values for circumference, area and room height. The room stamp is created by clicking on the button **[Room stamp]**. Then it can be placed. The room stamp can be automatically created with the first room base surface. This option can be selected in the menu **Tools - Settings**.

The content of room stamps is automatically refreshed after each modification of the base surfaces.

Using the button **[Font]** you can design the type face. The most frequently used font sizes can be directly selected in the dialog. The dialog is closed by a click on the button **[Place]**. A rectangle corresponding to the size of the text is shown on the drawing surface. A click allows to insert the text in the drawing surface.

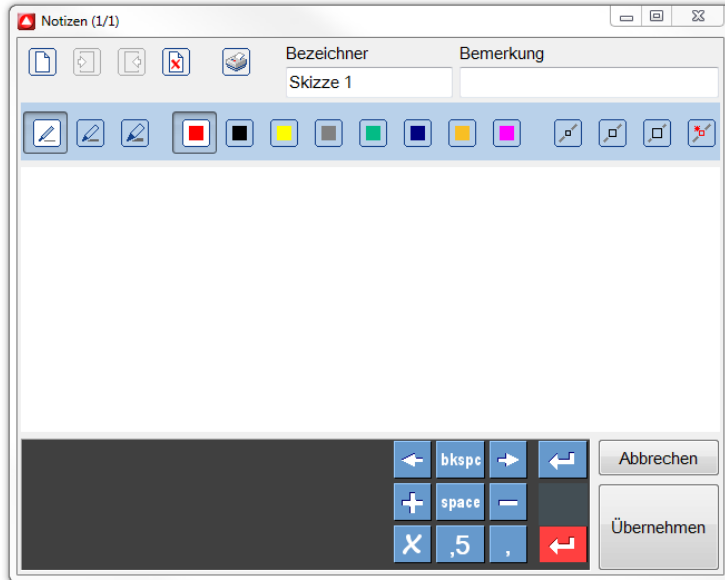
The option “**insert rotated**” will create a temporary line cross at the insertion point to determine the sense of rotation.

Text and room stamp can be created with a frame. This option can be selected in the menu **Tools - Settings**. For hints regarding the definition of room stamps, refer to the Annex.

5.2.3.12 Sketch



Sketches can be easily prepared on devices with pen or finger control. The following commands are available:



- First row**
- Create new sheet
 - Change to next sheet
 - Change to previous sheet
 - Delete current sheet
 - Print current sheet
 - Identifier: free text, the identifier is used in the element list
 - Remark: free text, the remark is used in the reports
- Second row**
- Line thickness thin
 - Line thickness medium
 - Line thickness thick
 - Eight buttons for eight pen colors
 - Eraser thin
 - Eraser medium
 - Eraser thick
 - Delete object, deletes the object created by one polyline

For the export, sketches are converted into image files of the GIF type. Thus sketches can be displayed on any PC, even if it does not support digital ink.

5.2.3.13 Free-hand line



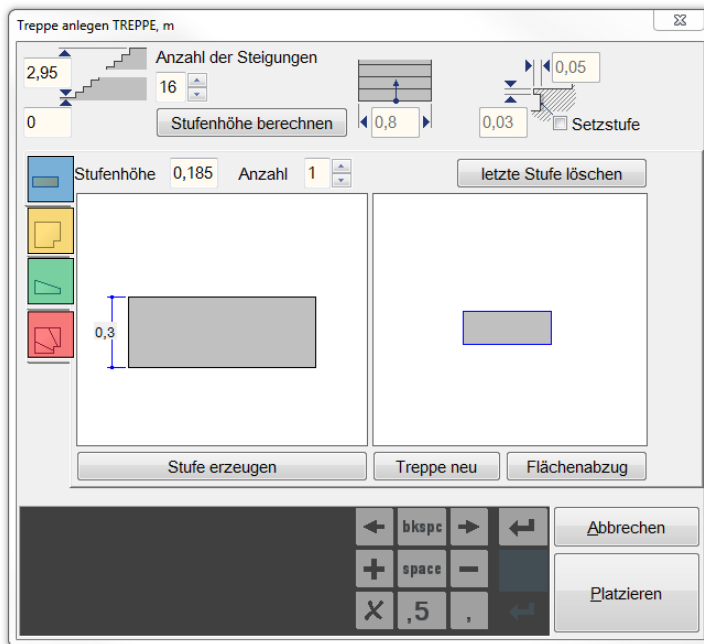
The free-hand line creates a polyline on the drawing surface. This polyline consists of connected line sections following the mouse movement. For this purpose, the left mouse button must be pressed during drawing.

The command is automatically repeated until another command is selected or the function is cancelled by means of the **[ESC]** key.

5.2.3.14 Stairs



On-Site Survey has been provided with a recording tool for stairs.



The survey of the stairs starts with the input of the initial stair width, the step thickness and the underlap. If the box *with riser* is activated, the risers will be drawn. Using the optional input of storey height and number of steps, the step height can be calculated. The step height can also be entered individually for each step.

Then the stair is measured by adding steps and platforms.

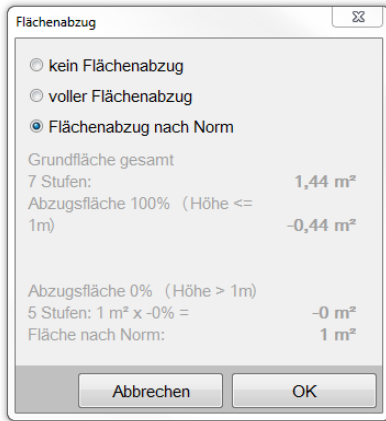
The measured values of a step are directly entered in the corresponding figure. If you click on a figure, an input field will appear and allows to change the existing value. By pressing **ESC** or clicking on another area of the window, you can close the input field. There are four step types:

- - **Straight step:** This step type requires one parameter which defines the depth of the step. By selection of a *Number* several identical steps can be generated at once.
- - **Platform:** The platform enables a change in direction and a change of the stair width. The button *Mirror* allows to mirror the platform at the vertical axis in order to continue the stair on the left side.
- - **Inclined step:** The inclined step requires two parameters, the left and the right step depth. By selection of a *Number* several identical steps can be generated at once.

- **Corner step:** The corner step allows to record a stair corner. Based on the parameters shown, three individual steps are generated automatically. The corner step can also be mirrored in order to continue the stair on the left side.

If all parameters of the current step have been entered, it will be generated by a click on **[Generate step]**. The preview of the current stair is displayed on the right. **[Delete last step]** allows to remove the step created at last. Thus a wrong entry can be corrected.

The base surface of a stair is separately indicated in the area balance. The button **[Surface deduction]** opens the dialog for the determination of the surface deduction.



There are three options:

- No surface deduction: The stair's base surface is not deducted from the room's base surface.
- Full surface deduction: The stair's base surface is completely deducted from the room's base surface.
- Deduction acc. to standard: According to settings in utilization set.
- The individual area proportions of the current stair are listed. They are considered in the area balance of the room book.
-
- If all steps of the stair have been generated, the stair can be inserted in the ground plan using the button **[Place]**. First, the insertion point of the lower left corner is determined. Then the stair's orientation can be defined.

5.2.4 Measurement functions



The measurement functions control the input, correction and deletion of measured values.

For each new base surface and construction line, On-Site Survey automatically changes into the measurement mode (not for base surfaces determined by parameters).

When the required measured values are entered, On-Site Survey automatically closes the measurement mode.

When you double-click on an element or use the button **[Element information]** (shortcut **[I]**), the dialog by means of which the element was created will open. If a base surface was measured by parameters, the base surface will also be changed by the modified parameters. Thus a rectangle can, for example, be changed by a few clicks from 5x4m to 6x4m.

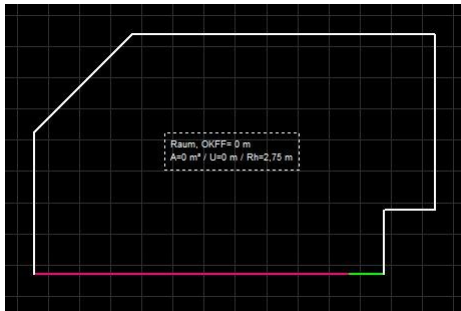
5.2.4.1 Measurement mode



If you want to change already measured elements, click on the button **[Change to measurement mode]** or press the shortcut **[M]**.

You can only start the measurement mode if an element to be measured was selected before.

Depending on the base surface type and the base surface form, measured values are assigned to sides, diagonals or angles in the measurement mode. The active measurement mode is represented in a particular way. Fillings are automatically switched off and the side or diagonal to which a measured value can be assigned is shown in magenta/green.



The green line indicates the direction of the measurement. The selected edge or diagonal will change its length in this direction.

You can leave the measurement mode at any time using the key **[ESC]** or button **[ESC]**. On-Site Survey will save all measured values already assigned. If a surface has not been completely measured, On-Site Survey will show the surface with dashed lines. A report for this surface will indicate the result zero. For all completely or partially measured surfaces, the measurement mode can be reactivated to add or change values.

5.2.4.2 Enter measured values

Keyboard

Enter the measured value using the keyboard. Then press the ENTER key. Decimal places can be separated by a dot or comma. The input **3.54** corresponds to the input **3,54** (unit [m]).

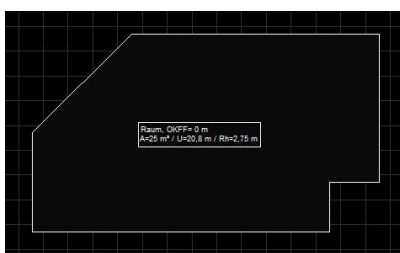
Pen or finger control

If the computer is provided with a touch screen, you can manually enter the measured value in the input field and press the button "red" Enter next to the writing area.

Bluetooth laser

If the program is connected to a Bluetooth laser (the functionality is described in chapter 8 Bluetooth laser devices), you can transfer the measured value by pressing the Bluetooth key on the laser twice. If the same value is transferred twice, the field will be changed.

During each of these input methods, the measured value is assigned to the active side/diagonal. On-Site Survey automatically changes to the next side. Now, this process is repeated until sufficient measured values have been entered and the surface is constructed.



5.2.4.3 Order of measured values

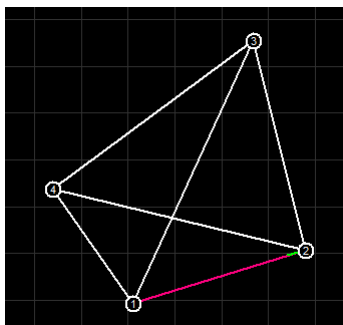
In practice, it can be possible that the order of measured values suggested by the program cannot be realized because the conditions on site avoid the determination of measured values. In this case, the user has to select other sides/diagonals for the assignment of measured values:

- Press Enter until the desired side is highlighted.
- Click on the desired side/diagonal in the drawing area

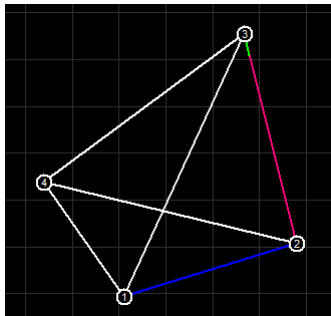
5.2.4.4 Colors in the measurement mode

In the measurement mode, On-Site Survey displays the following colors:

blue	A measured value has been saved. It can be changed.
white	This side/angle has not been measured.
magenta	The next measured value is assigned to this line.
green	This side/angle is the result of other measurements and cannot be changed.

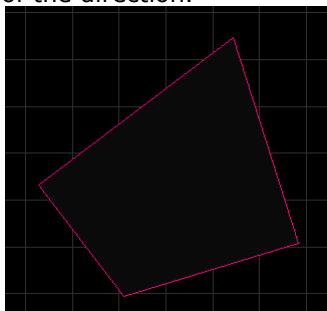


In the measurement mode click on the side or angle to be measured. The direction of the length measurement results from the proximity of the click point to a side end. The measurement direction is displayed in green. When clicking, the sides and angles of the active surface are given priority over inactive surfaces. You can change to the sides and angles of inactive base surfaces by clicking on them.

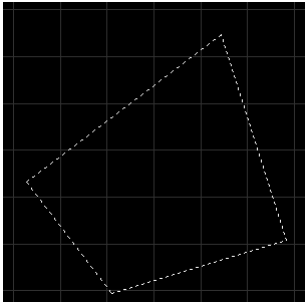


By pressing the **[Enter]** key, On-Site Survey will apply the current measured value and change to the next side.

Using the cursor keys **[Up]** and **[Down]** you can change the measurement direction and change between sides and angles. If there are value chains on one side, they will be reversed at the change of the direction.

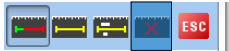


If a sufficient number of measured values has been entered for one surface, On-Site Survey will automatically quit the measurement mode.



Incompletely measured base surfaces are shown with dashes on the drawing surface.

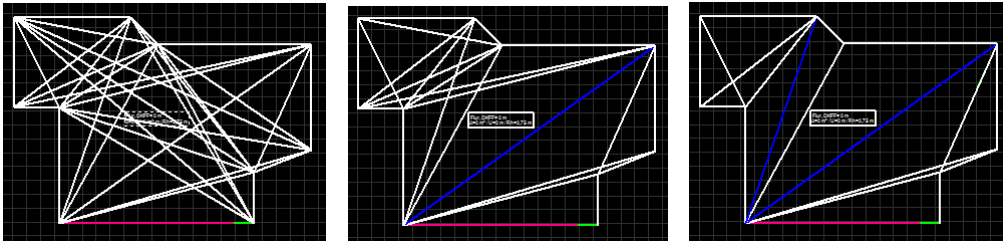
5.2.4.5 Delete measured values



In the active measurement mode, the adjoining button **[Delete measured value]** becomes active. A click allows to delete the measured value of the currently active side/diagonal/angle. Alternatively, the key **[DEL]** can be pressed on the keyboard.

5.2.4.6 Measure diagonals

Polygonal surfaces with many corners lead to many diagonals that can be measured. As soon as a measured value has been assigned to a diagonal, all crossing diagonals will become invisible. This gives the user a better overview. The following example shows a free polygon after sketching, after the measurement of the first diagonal and after the measurement of the second diagonal:



Already measured diagonals can be deleted. Then the invisible diagonals are displayed again and can be measured.

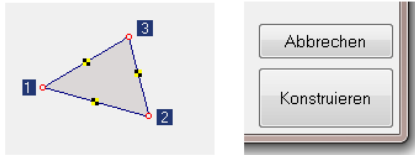
5.2.4.7 Transfer of measured values

You construct elements by entering points or by clicking on the drawing surface. If you click on snap points of existing elements, On-Site Survey will check whether these snap points have the status "measured" or "not measured". The points of the new element will "inherit" this status. The sides or diagonals between two points which have the status "measured" are evaluated by On-Site Survey as "measured". This transfer of measured values significantly reduces the number of measurements when ground plans are composed of several base surfaces.

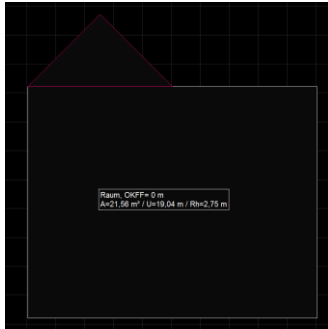
Example: Construct a triangle at a rectangle:



This rectangle has been measured.



Select base surface triangle and click on **[Construct]**.



- First point** Click on the left upper corner of the rectangle. Snap point 1 gets the status "measured"
- Second point** Click in the middle of the upper rectangle edge. Snap point 2 gets the status „measured“.
- Third point** Click on the intersection point of the temporary auxiliary lines of the first and second point. Snap point 3 gets the status "measured“.

The triangle has been measured.

5.2.4.8 Construction line



The construction line saves values chains. Value chains can be used to measure room elements, e.g. windows, doors or heaters. Each measured value on the value chain is provided with snap points at which windows, doors and further elements can be constructed in an exact way. Value chains consist of measured values separated by blanks:

Input: 80,5 +126 466

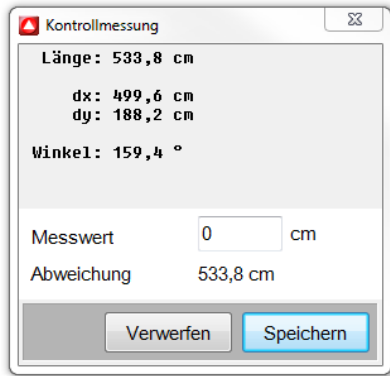
Explanation of the value chain:

- 80,5 The first measured value is located at a distance of 80,5 cm from the starting point, e.g. the wall corner.
- +126 The second measured value is located at a distance of 126 cm from the previous value. It is, e.g. the inner width of the window. All measured values with a "+" or "-" refer to the previous measured value.
- 466 The third measured value is located at a distance of 466 cm from the starting point.

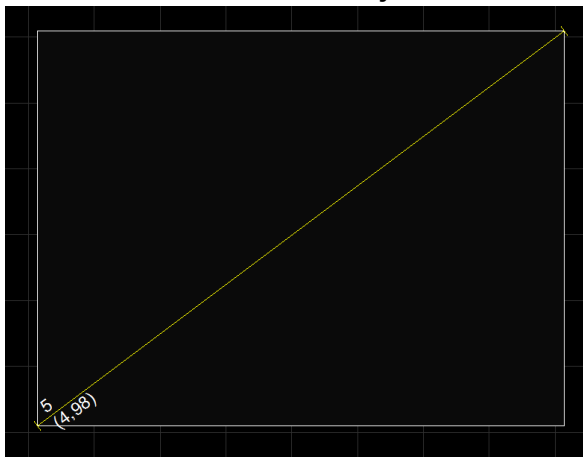
5.2.4.9 Control measurement



The control measurement allows to check the measured ground plans and saves, if necessary, the calculated and measured value. Click on the starting and end point on the drawing surface. The following dialog will appear:



The distance of click points (length), the X and Y distances and the angle are displayed. The value measured in reality is entered or transferred by the laser in the field measured value. The difference between the calculated and entered value is automatically calculated and indicated (deviation). The control measurement can be rejected or saved.



If you choose **[Save]**, a line will be generated and entered in the drawing surface with the calculated and measured length (in brackets).

5.2.5 Simulate ESC key



Many mobile systems, in particular tablet PCs, but also netbooks with touch display allow the user to work without a keyboard. On-Site Survey has been optimized for mobile use and supports you during the use of those devices.

The **[ESC]** key is used to cancel current commands. If your hardware is not equipped with an **[ESC]** key, you can simulate it by clicking on this button

5.2.6 Change functions



This area contains functions for editing elements. In order to edit elements, you must select one element or several elements.

5.2.6.1 Move



You activate the command move by clicking on the button and/or using the shortcut **[V]**. Direction and length are defined by two points. You can click on the points in the drawing surface and/or determine them by entering points.

Example Select element
 Click point on element (arbitrary)
 Input 0 1

The element is moved upwards (90°) by 1m (unit m).

5.2.6.2 Rotate



You activate the command rotate by clicking on the button and/or using the shortcut **[D]**. There are three possibilities to rotate an element into a defined position:

Center of rotation, initial angle, end angle

This possibility allows to easily adapt elements to existing base surfaces. The first click point defines the center of rotation. The second click point defines the initial angle and the last click point the end angle and thus the target position of the rotation.

Center of rotation, current angle, target angle

This possibility is similar to the variant before. The difference is that the target angle is entered in degrees. Thus elements can be rotated to defined positions, e.g. 30°, 45° or 90°.

Center of rotation, delta angle

This possibility allows to rotate elements by a certain angle. The first click point defines the center of rotation. Then the rotation angle is entered in degrees. A positive angle leads to an anticlockwise rotation whereas a negative value rotates the element in clockwise direction.

5.2.6.3 Distort



The command distort allows to adjust the size of library elements, documents and free-hand lines. Survey elements cannot be scaled as the measured values would get lost.

5.2.6.4 Library elements and free-hand lines

Elements can be scaled in two different ways:

Scaling point, length A, length B

The first click point defines the scaling basis point. This point is the center of the scaling, i.e. all points refer to this point. A second click point positions the first length (=from). The third click point positions the second length (=to). Based on these two lengths, the scaling factor is calculated:

$$\text{Skalierungsfaktor} = \frac{\text{Länge A}}{\text{Länge B}}$$

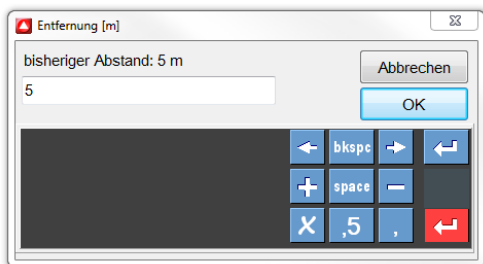
Then the library element and/or free-hand line is scaled based on the scaling basis point.

Scaling point, scaling factor

In this variant, the first click point also defines the scaling basis point. The scaling factor is entered using the keyboard. Values greater than 0 and smaller than 10 are admissible. Then the library elements and/or free-hand lines are scaled based on the scaling basis point.

5.2.6.5 Documents

When you scale a document, you have to position a reference line by clicking on two points. The distance of the clicked points is shown in a dialog.



This dialog allows to enter the desired length. On-Site Survey will automatically adapt the size to the document. Thanks to this method, scans can be inserted and scaled in the project.

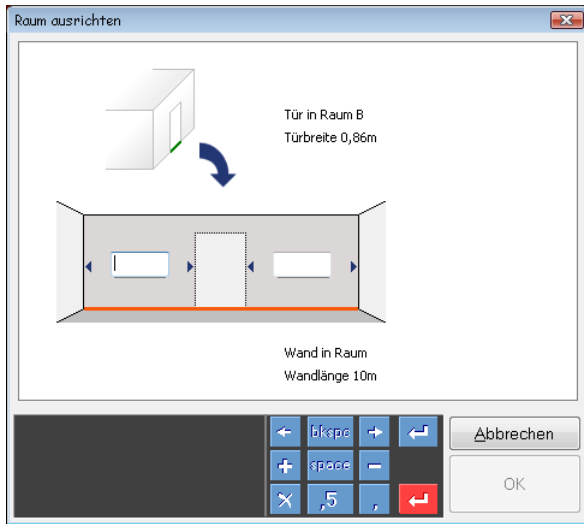
5.2.6.6 Orientate rooms



This function or the shortcut **[A]** allows to position rooms by a few clicks only. In order to establish a positional relation, at least two rooms and one measured door or passage connecting two rooms are required.

The initially selected room (green, thick line) is moved to the room which was selected next (orange, thick line). If a door or a passage has been selected in the first room, only one room side can be chosen in the next room. If a wall side has been selected in the first room, only one door or one passage can be chosen in the next room.

When you have clicked on the second room, the following dialog will appear:



As the door or passage has already been measured, the missing reference dimension has to be entered at the selected room side as left or right distance to the wall corner. At this room side, a measuring line is generated with the indicated length. Thus the assignment is easily understandable.

The graphic in the dialog shows the selected assignment situation (room side > door, door > room side) and the involved rooms/room sides.

A click on **[OK]** will establish the positional relation of the rooms.

Rooms can be assigned in each structure layer.

5.2.6.7 Copy



Selected elements are copied from a reference point to a target point. The functionality is identical with the command move elements (shortcut **[Ctrl+C]**).

5.2.6.8 Mirror



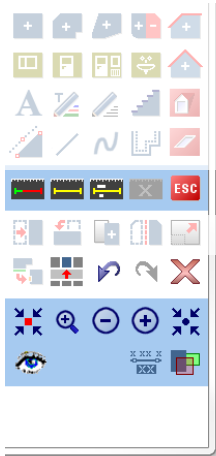
Selected elements are mirrored at a straight line. You can click on the points of the mirroring line or define them by entering points.

5.2.6.9 Delete



Selected elements are deleted by a click on the button or via the shortcut **[DEL]**. An unintended deletion can be undone using the command **Undo [Ctrl+Z]**.

5.2.7 Service functions



5.2.7.1 Element information



The information of a selected element can be accessed using the button **[Element information]**, the shortcut **[I]** or a double-click. The dialog which created the selected element will open. The features belonging to the element, e.g. circumference, area, volume, length, angle etc., are displayed. In case the dialog contains parameters, these parameters can be changed here.

5.2.7.2 Select room directly



When the function **Select room directly** has been selected, it is possible to click on a base surface of a room on the drawing surface. Then the room with this base surface will become the active room of the project. The room is shown on full screen.

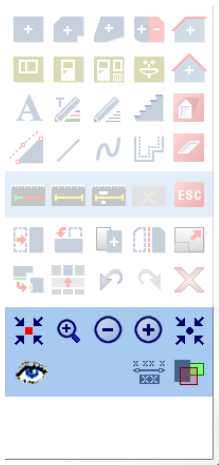
5.2.7.3 Undo, redo



These functions allow to undo **[Ctrl+Z]** or redo **[Ctrl+Y]** actions. The set number of steps is 20. It can, however, be adjusted in the settings on the tab sheet options. This number of steps concerns the actions per structure unit, i.e. for each room, area etc. the set number of steps is possible. The following actions are taken into account:

- Create and delete drawing objects
- Modify drawing objects
- Enter or modify measures

5.2.8 Zoom functions



5.2.8.1 Zoom to current structure unit



The window section [F3] is adjusted so that all elements of the current structure area are displayed.

5.2.8.2 Enlarge image section



This function [F6] will enlarge a section of the drawing surface. When the function has been activated, you can click on a rectangle by using two diagonal points on the drawing surface. The content of this rectangle is enlarged as soon as the second point has been positioned.

5.2.8.3 Full screen



The total drawing surface (sheet)[F5] is shown.

5.2.8.4 Show measured values on/off



This button allows to switch the display of measured values inside a room on or off.

5.2.8.5 Surface fillings



This button allows to switch surface fillings on or off. Fillings characterize surface types and project hierarchies and thus lead to a clearer ground plan design. Sometimes, however, the surface fillings might cover underlying elements. In those cases it is recommended to switch to the line mode.

5.2.8.6 Enlarge view



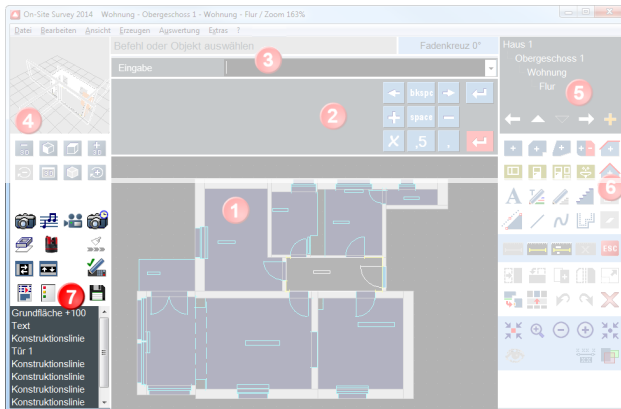
The drawing section is enlarged by the factor 1.5. The central point of the drawing section is kept.

5.2.8.7 Reduce view



The drawing section is reduced by the factor 1.5. The central point of the drawing section is kept.

5.3 Functional group 2



This area comprises buttons for laser connection control, multimedia data, surface control as well as reports and exports.

5.3.1 Multimedia functions



On-Site Survey offers the possibility to document the building by multimedia data. Photos, videos or spoken comments can be integrated in the project. Remarks can be added to each multimedia file. The multimedia functions support DirectShow-capable recorders, e.g. web cams. Web cams can be universally used to record photos, videos and audio files.

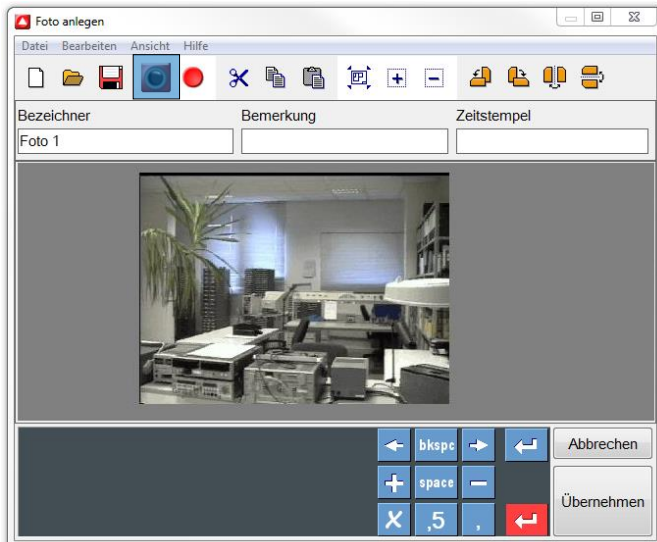
If you use a web cam, you can define in the settings on the tab sheet "General" that a recording dialog immediately starts when you create a photo, audio or video.

Multimedia data are always assigned to rooms. Each data set can be completed by a name and a remark.

5.3.1.1 Add photo

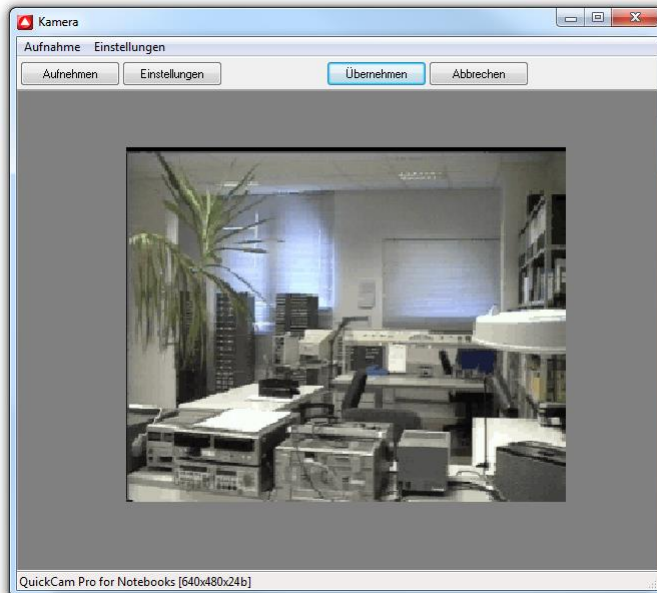


When the command has been selected, a dialog will appear:



The photo dialog comprises buttons to zoom, cut, copy, paste, rotate and mirror. If a version of On-Site Photo has been installed, you can start to measure the displayed image by clicking on the icon of On-Site Photo.

The dialog for taking photos by means of web cams is opened by a click on **[Start taking photo]**.



The button **[Settings]** allows to select the web cam used and the resolution. Click on **[Recording]** to record a photo. A click on **[Apply]** closes the recording dialog and transfers the photo for editing purposes to the On-Site Survey project.

A click on **[Apply]** allows to place the photo in the room with the position and viewing direction.

A camera symbol is placed in the drawing surface as a placeholder for the media file. The first click determines the position of the symbol, the second click defines the viewing direction. Thus, the multimedia elements are clearly assigned to the room (structure) and the ground plan (position).

If no DirectShow-capable camera is connected, the camera symbol is created, as described. A photo of the digital camera can also be subsequently added to the project via **Image-open**.

5.3.1.2 Add audio

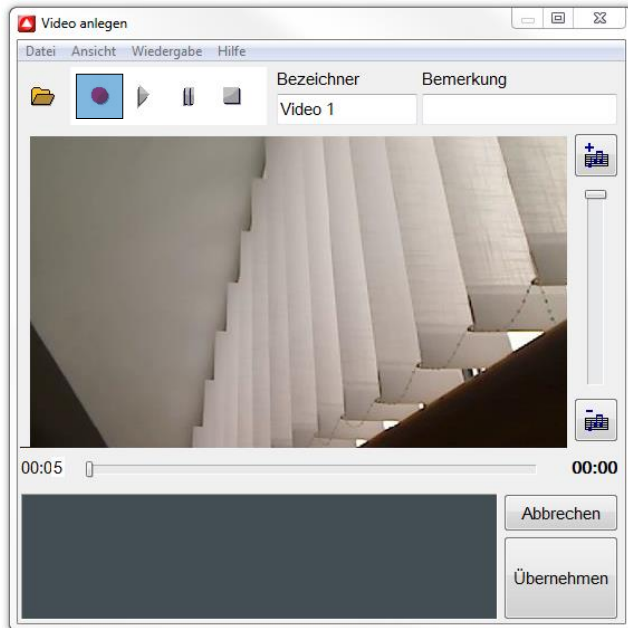


The audio recording starts after a click on the button [Start recording]. A microphone must be integrated in the PC, or an external microphone is to be connected. In the dialog, you can stop the audio recording, listen to it and place an audio symbol as a place holder for the media file in the drawing surface by clicking on **[Apply]**.

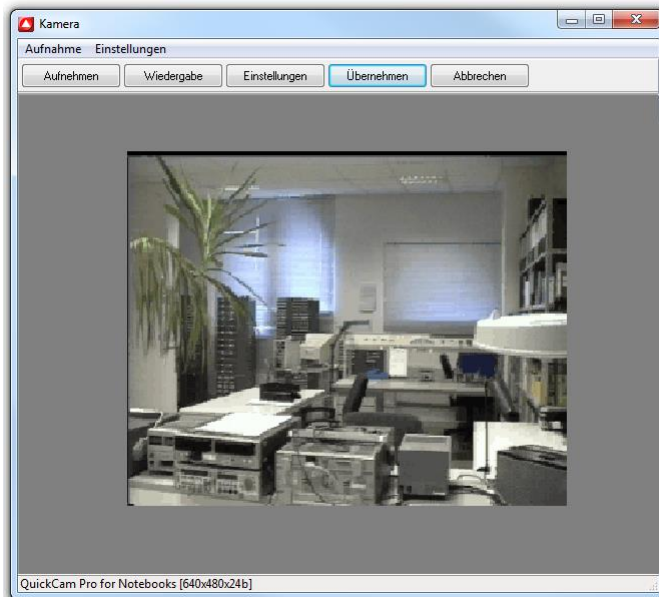
5.3.1.3 Add video



When the command has been selected, this dialog will appear:



A click on **[Start recording]** starts the dialog window for the direct control of the web cam. You can compress videos in the **[Settings]** to keep the project's data volume at a low level. Further settings concern the resolution and the frequency.



You start recording with the web cam by clicking on **[Recording]**. A click on **[Stop recording]** ends the recording. To display the record, click on **[Play]**. A click on **[Apply]** allows to place the video in the room with the position and viewing direction. A camera symbol is placed in the drawing surface as a placeholder for the media file. The first click determines the position of the symbol, the second click defines the viewing direction. Thus, the multimedia elements are clearly assigned to the room (structure) and the ground plan (position). If no DirectShow-capable camera is connected, the camera symbol is created, as described. A video can also be subsequently added to the project via **File-open**.

5.3.1.4 Photos with time stamp



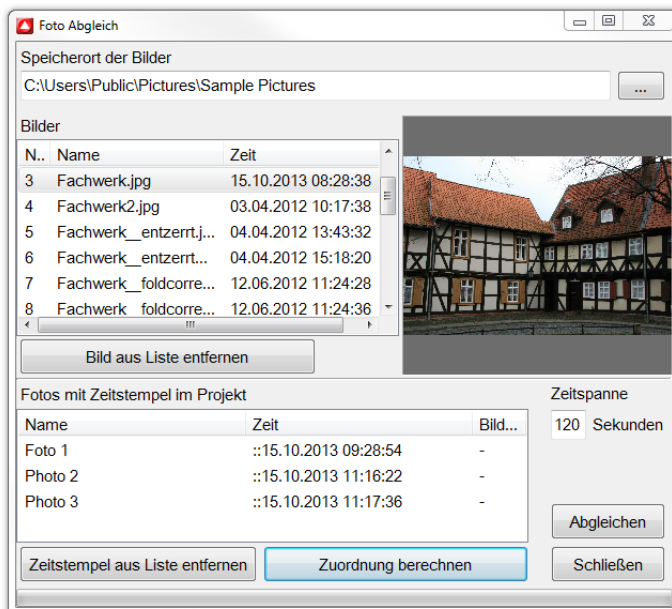
When using a digital camera with many snapshots, the manual assignment of the images to the project requires much time. On-Site Survey offers the possibility to automatically assign photos of a digital camera via the time stamp procedure.

The procedure:

1. Adjust the same time and the same date in the camera and on the PC.
2. Take a photo on site with the digital camera.
3. Place a photo symbol with time stamp in your room as soon as possible (tolerance limit = 120 seconds). This symbol is inserted by three clicks:
 - a. Location of the camera
 - b. Direction in which the photo was taken
 - c. Determine the date/time



Later on, connect camera and PC, and select the storage location of the photos to be assigned in the menu **Tools – Adjust photos**.



First of all the storage location of the photo is selected. The first list contains the images that On-Site Survey finds in the selected storage location. The second list contains all photos with time stamp saved in the project.

Via **[Adjust]** you start an allocation process during which all images that are within the maximum time period are copied into the On-Site Survey project.

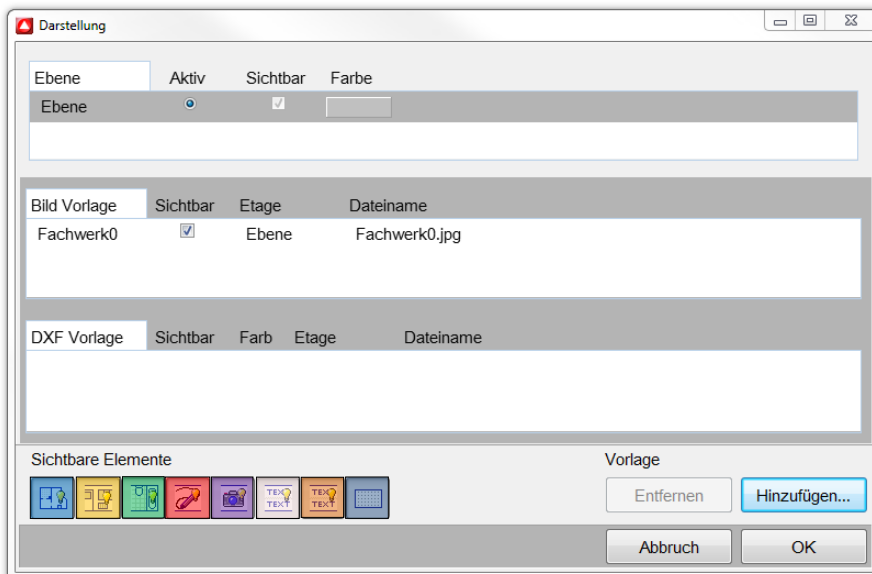
5.3.2 Reports, settings and service functions



5.3.2.1 Templates



In On-Site Survey, images in the formats BMP, JPG and TIF as well as PDF and DXF files can be used as templates. On-Site Survey is provided with a template control where the templates and layers of the project can be adjusted visibly or invisibly.



In the area **layer** all storeys of the current On-Site Survey project are listed. You can switch the storeys in a visible/invisible mode and assign a color to each of them.

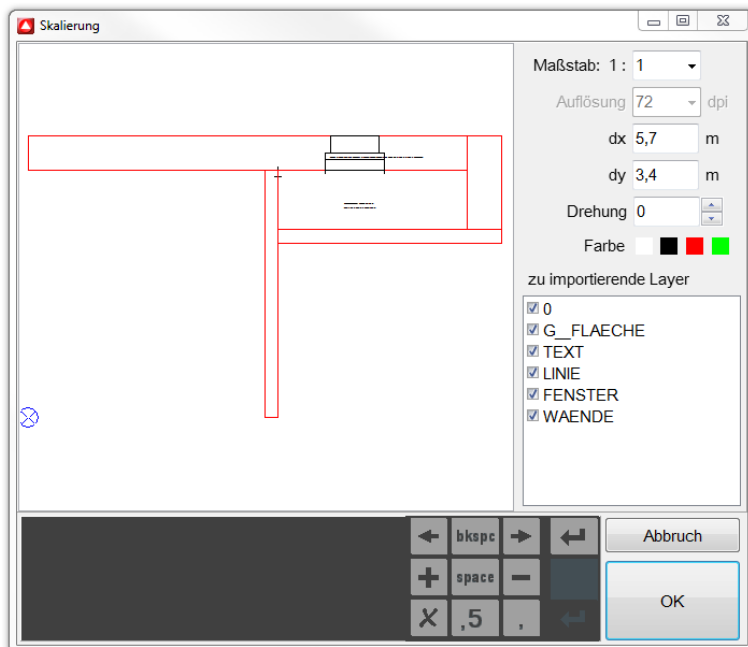
The settings have no impact on the active storey. It is always shown. The colors are defined in the settings. In the area image template and DXF templates, all templates in a project are listed according to their type. All templates can be switched in a visible/invisible mode.

The template control is divided in the areas layer, image template and DXF template. Besides, buttons for the control of visible elements are available. These settings have an impact on all layers of a project:

- Representation base surfaces on/off
- Representation room elements on /off
- Representation library elements on /off
- Representation free-hand lines on / off
- Representation multimedia symbols on /off
- Representation text fields on /off
- Representation text fields in room elements on / off
- Representation grid on /off

5.3.2.1.1 DXF template P

You add a DXF template by clicking on the button **[Add]** in the template control. A file selection dialog in which you choose a DXF file is displayed. Then the scaling dialog will appear.



On the left side you will see a preview of the DXF template. The blue circle symbolizes the insertion point for the DXF template. The insertion point can be placed in the preview by clicking on the corresponding point. On the right side the scale and the resulting dimensions are displayed. You can enter any scales or dimensions. Templates can be scaled on site after the insertion.

It is possible to rotate DXF templates. In the preview all layers are shown. The layers that are not to be imported will be unchecked. After the import of the template you do not have access to the layer structure. By pressing **[OK]** you can insert the template in the drawing surface. In the DXF template area you find a list of the inserted DXF files. You can switch the templates in a visible/invisible mode and assign a color to each template.

The On-Site Survey snap functions allow to catch end and central points on DXF templates.

The imported DXF file is copied into the project directory.

5.3.2.1.2 Image template P

Images are inserted similarly to DXF templates. In an additional scaling setting you can choose the resolution of the image. By pressing **[OK]**, image templates will always be inserted at the lower left corner. Image templates can be scaled on site after the insertion.

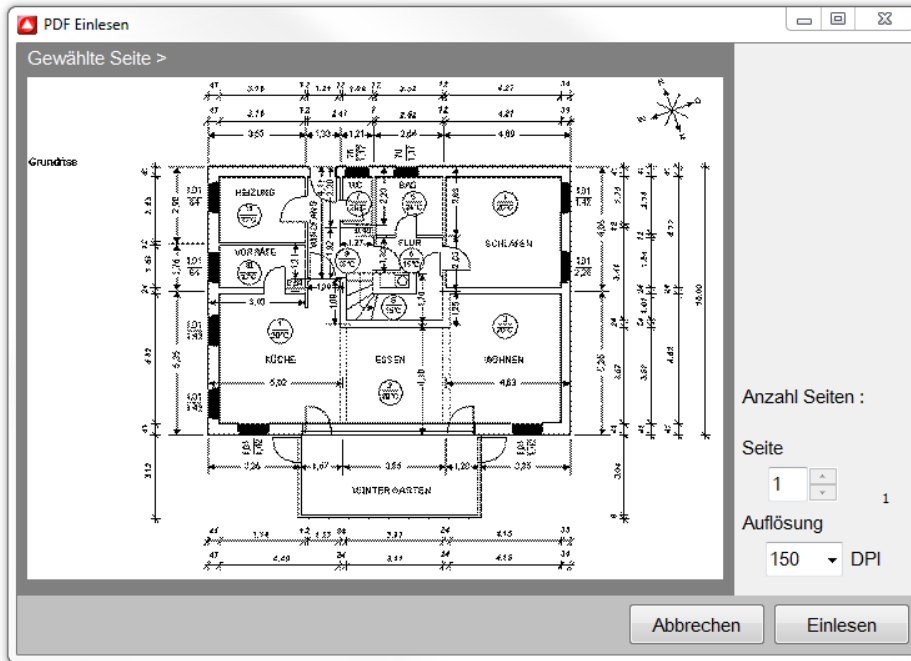
In the image template area you find a list of the inserted images. You can switch the images in a visible/invisible mode. On-Site Survey snaps on each point of the image template.

The imported image file is copied into the project directory.

5.3.2.1.3 PDF template



Plans in the PDF format can be used in On-Site Survey. When a PDF file has been opened, a dialog for the selection of the page to be imported will appear.



Furthermore, the resolution of the image file which is generated from the PDF file can be determined.

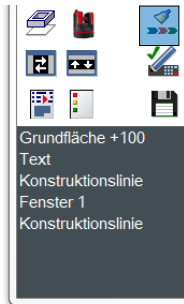
A click on **[Import]** allows to convert the selected PDF page into an image file. Then the scaling dialog will appear. The procedure is identical to the insertion of an image. The PDF file as well as the generated image file are placed in the project directory.

5.3.2.2 Recording of room data with room scanner (Disto 3D)



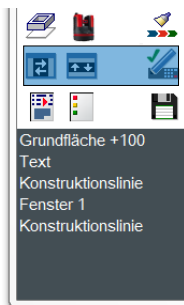
If the software is equipped with the optional module DISTO-3D, Leica DISTO-3d can be used for recording base surfaces. In case the menu **?, Info, Interfaces** lists Leica DISTO 3D, the module exists. The license for the optional module can be acquired subsequently. The functionality of the module is described in chapter 7 Disto 3D room scanner.

5.3.2.3 Duplicate elements



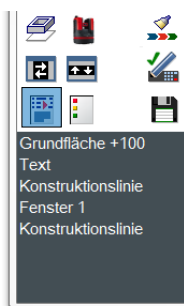
The function *Create like* allows to duplicate existing elements. For this purpose, highlight an element on the drawing surface. Then click on **[Create like]** to start the construction command with parameters identical to the element selected before.

5.3.2.4 Adapt interface

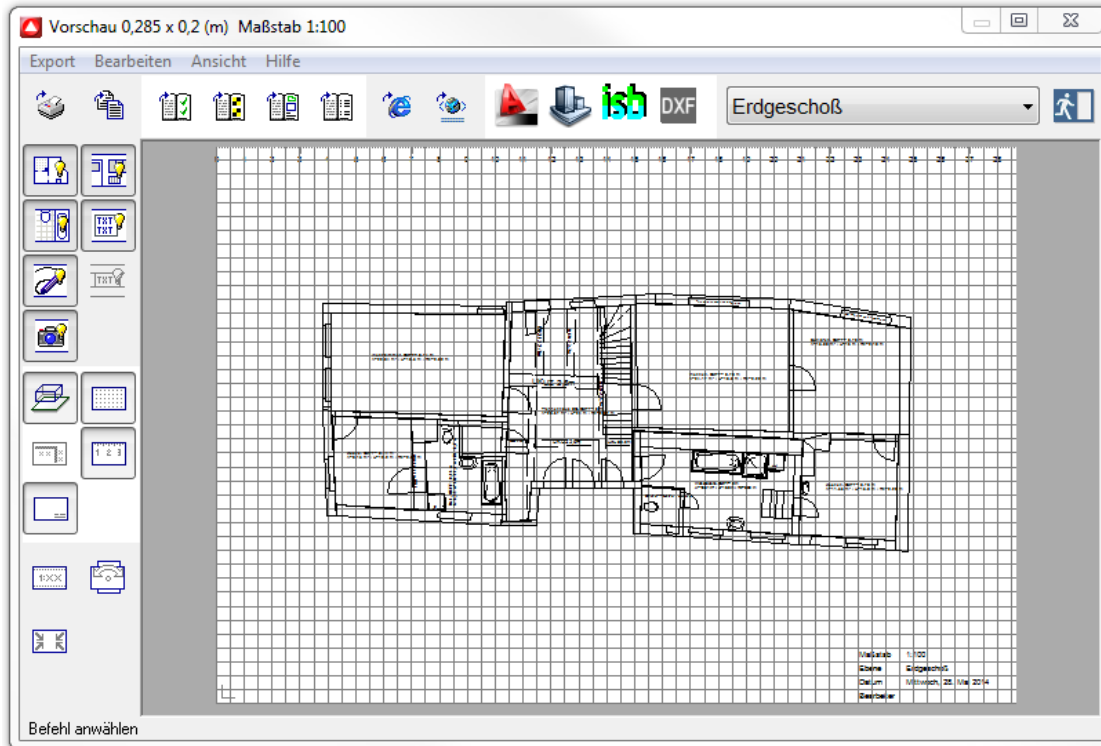


By using these buttons you can adapt the program's interface to your needs. A click on **[Left /right hand]** will change the vertical input areas on the left and right side of the user interface. Besides, the position of the buttons in the input area for handwritten text is changed. Thus it is ensured that the program can be optimally controlled by right-handers and left-handers. The button **[Writing area top/bottom]** switches between two positions for handwritten input. Depending on which hardware is used and how the computer is carried, it can be more appropriate to enter text either in the upper or lower area. If no text is to be entered by means of the handwriting recognition, the corresponding input area can be deactivated using the button **[Handwriting recognition on/off]**. This will increase the available work surface.

5.3.2.5 Print, utilize, export

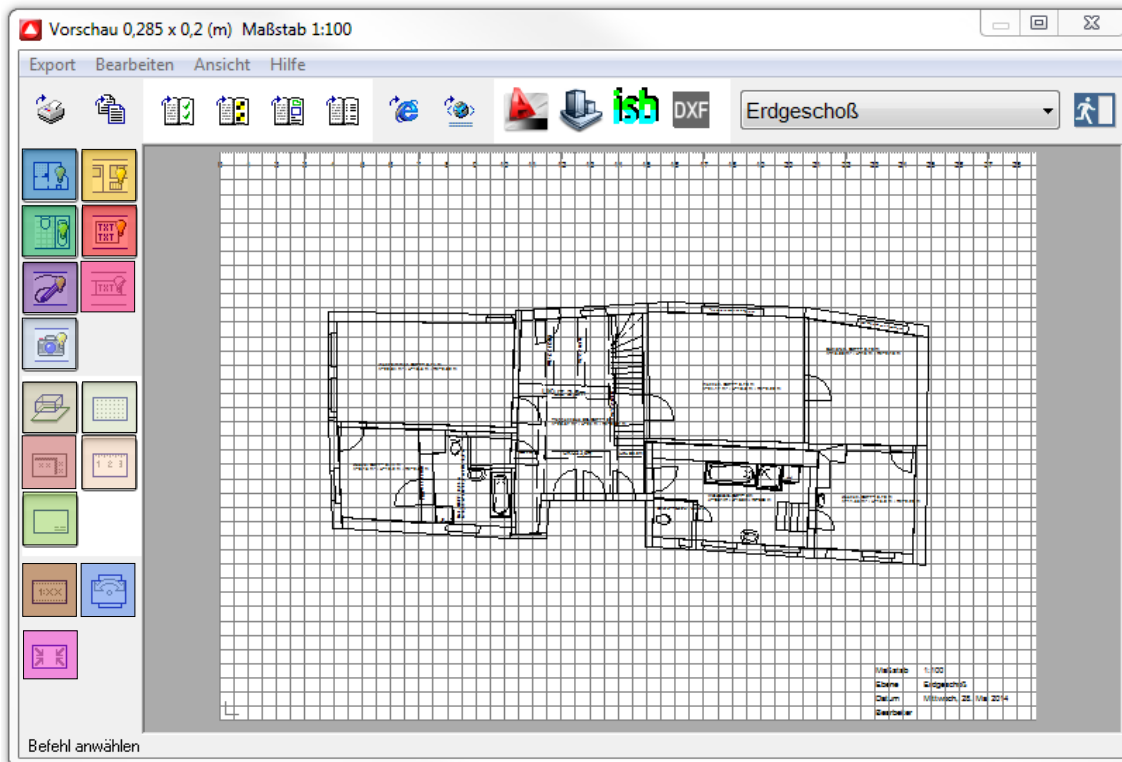


The button **[Print, utilize, export]** activates a preview of the currently selected structure area.















The print preview is the starting point for all export functions. The drawing objects belonging to the location in the project management are displayed. That means when you are in a room, only this room will be displayed, utilized, printed, exported etc. The drawing objects are scaled to the paper format of the current printer. On-Site Survey automatically calculates the optimum scale and shows it in the title bar of the print preview. If necessary, the scale can be adapted.

The buttons on the left side control the representation of the print preview. They have the following functions (from top to bottom):
















- Base surfaces on/off

-  • Room elements on/off
-  • Libraries on/off
-  • Texts on/off
-  • Free-hand lines on/off
-  • Symbols for sketches/audio/images/video /reports on/off
-  • Grid on/off
-  • Value display on/off:
This switch displays measured values inside a room.
-  • Ruler on/off
-  • Legend on/off
-  • Change sheet margins and scale:
In addition to the sheet margins of the printer you can define individual sheet margins. The scale can be selected in a list of preferred scales. The drawing objects are moved on the drawing surface to another position using the drag & drop method (press left mouse button and hold it, drag and release it)...
-  • Change between portrait and landscape format
-  • Center drawing:
This function is used to center the drawing after a scale change or if you have moved the drawing out of the print preview.

In the upper row the following buttons are arranged from left to right:



-  • Print – The printing dialog of the operating system will appear.
-  • EMF export – The drawing objects are copied to the Windows clipboard and can then be pasted into other Windows programs. In order to test this function, you can use Microsoft Word. The command “Paste” allows to insert the clipboard content into a Word document. Please note that not all programs or operating systems completely support the EMF format. EMF is the extended WMF format (Windows MetaFile).
-  • Room book – Utilization (report) of the project structures with area balance in HTML format.
-  • Measurement protocol – Records of inputs and measured values in HTML format
-  • Documentation – Collection of data for each room
-  • Utilization (report) of additional data
-  • VML export
-  • XML export
-  • Allplan export
-  • AutoCAD export
-  • Glaser export
-  • DXF export
-  • Close print preview

5.3.2.5.1 Room book

The room book is created in the HTML format and can be directly printed, saved as well as read and edited by other programs.

On-Site Survey - Raumbuch

Gemeindehaus

Straße:	Dorfstrasse	Büro:	
PLZ / Ort:	/	Bearbeiter:	BPB
Telefon:		Projekt vom:	20.09.2003
Fax:		Druckdatum:	17.12.2013

1 Erdgeschoß

	Volumen, m³	Fläche, m²
Summe	298,29	132,95
Fläche gemäß Deutschland (WoFIV)		132,95
Wand	104,42	370,73
Wände (0,110 m)	0,89	0,30
Wände (0,240 m)	2,84	0,95
Wände (0,300 m)	1,04	0,35
Wände (0,365 m)	3,35	1,12
Wände (0,420 m)	5,26	1,75
sonstige Wände	91,03	30,34
Summe Wände	104,42	370,73

1.1.1 Wohnen - Wohnung rechts - Erdgeschoß

	Umfang, m	Höhe, m	Volumen, m³	Fläche, m²	Wichtung, %	Fläche, m²
Summe	19,8	2,2	34,56			24,17
Fläche gemäß Deutschland (WoFIV)						24,17
Seitenflächen						43,03
Seitenflächen mit Abzügen						37,54
Deckenfläche						24,17
Grundfläche +100	19,8	2,2	53,65	24,17	x 100% =	24,17 ✓
Podest	19,8	0,8	-19,09	24,17	x 0% =	0,00 ✓
Grundfläche Raum			34,56			24,17
Grundflächenabzug						
Dachschrägen/Gauben/niedrige Decken						-48,33
Grundflächenabzug Treppen						0,00
Fläche gemäß Deutschland (WoFIV)						24,17

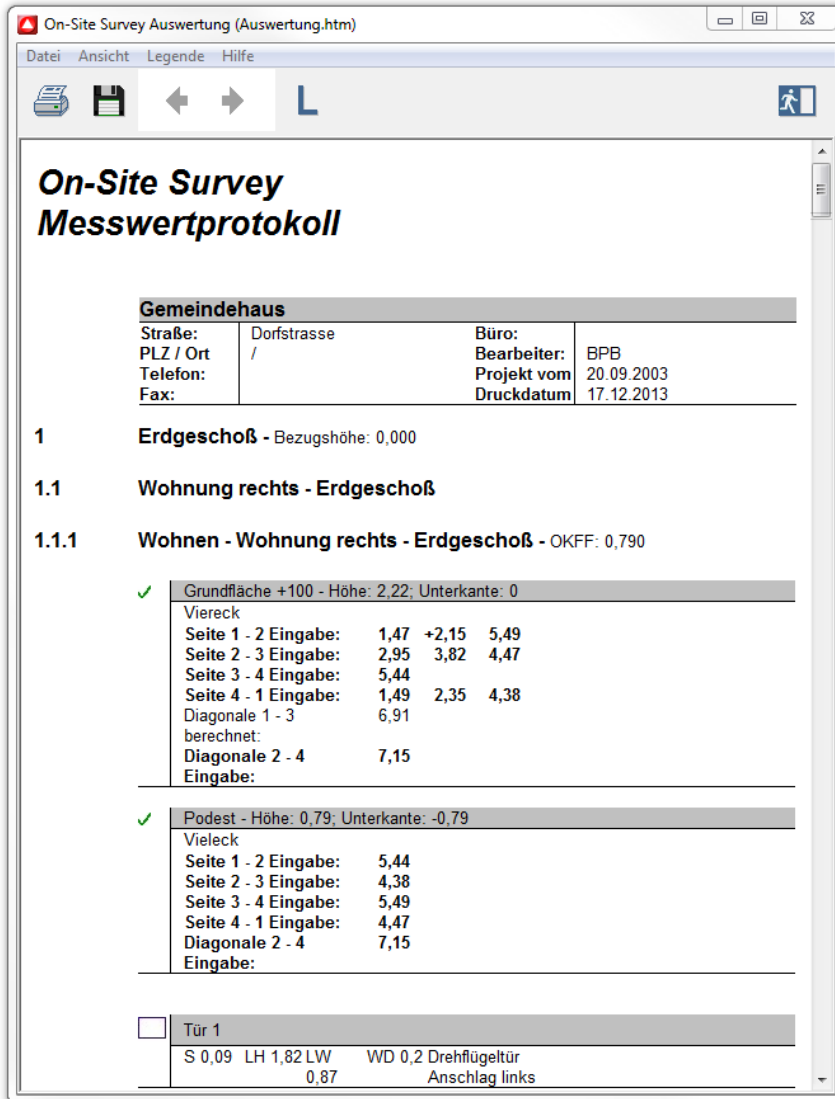
The project structure is represented by the numbering on the left side.

For each room the single surfaces are entered. The respective library elements, texts and additional elements are assigned to the room. The multimedia elements sketch, audio, image video and report are connected to the document by "links" and displayed with possibly existing remarks. When clicking on a link, the linked file will be automatically displayed or played. The links also remain after the export into other programs. The surfaces of all rooms are totalled and indicated with volume and circumference. Areas and storeys form subtotals.

If you have selected the *base surface deduction below roof pitches according to WoFIV* for the base surface types *Attic room with saddleback roof* or *Attic room one-sided roof pitch*, the surfaces to be deducted will be listed individually and as a sum in the room book. Roof dormers are also taken into account for the area balance. The utilization of dormers depends on the settings of the corresponding roof surface. Surface deductions below stairs are considered in the area balance, too. The weighting of the stair's base surface can be defined in the dialog of the component "stair". If the room book is selected from the storey or the project, walls will be utilized within the storey. The single walls of a storey are united according to their thicknesses. Base area and gross volume are displayed. In the legend the abbreviations and characters used are explained. Completely measured surfaces are marked with a green OK tick. Incomplete surfaces are marked with a red colored cross.

5.3.2.5.2 Measurement protocol

The structure of the measurement protocol is similar to the room book. The measurement protocol allows understanding the survey projects as each input of the project editors has been recorded.

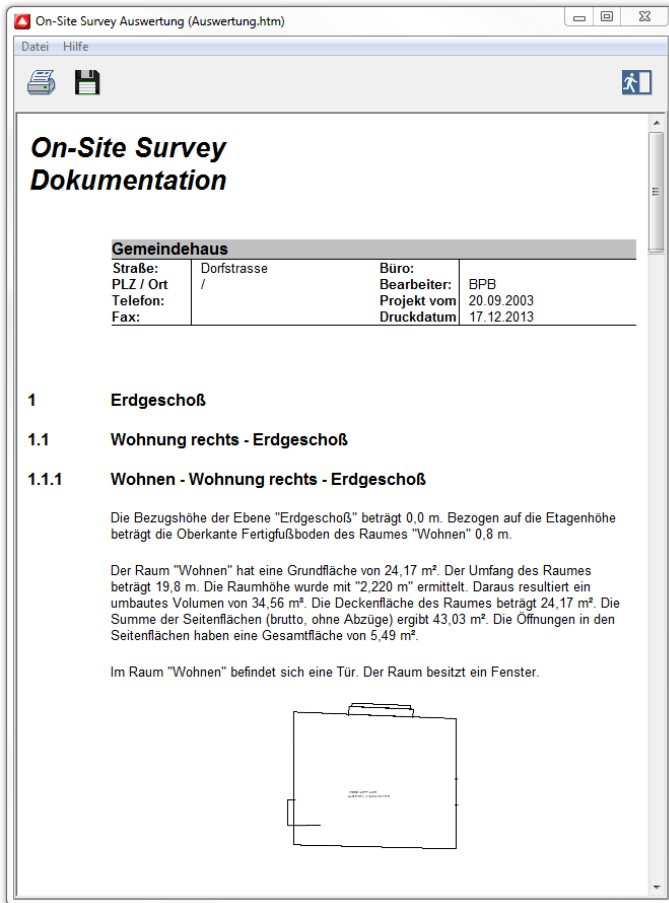


For each surface and construction line all entered values are saved. Room elements are listed with form and measured values. For stairs, the individual construction steps can be easily understood. Completely measured surfaces are marked with a green OK tick. Incomplete surfaces are marked with a red colored cross.

Thanks to the measurement protocol the survey can be checked at any time.

5.3.2.5.3 Documentation

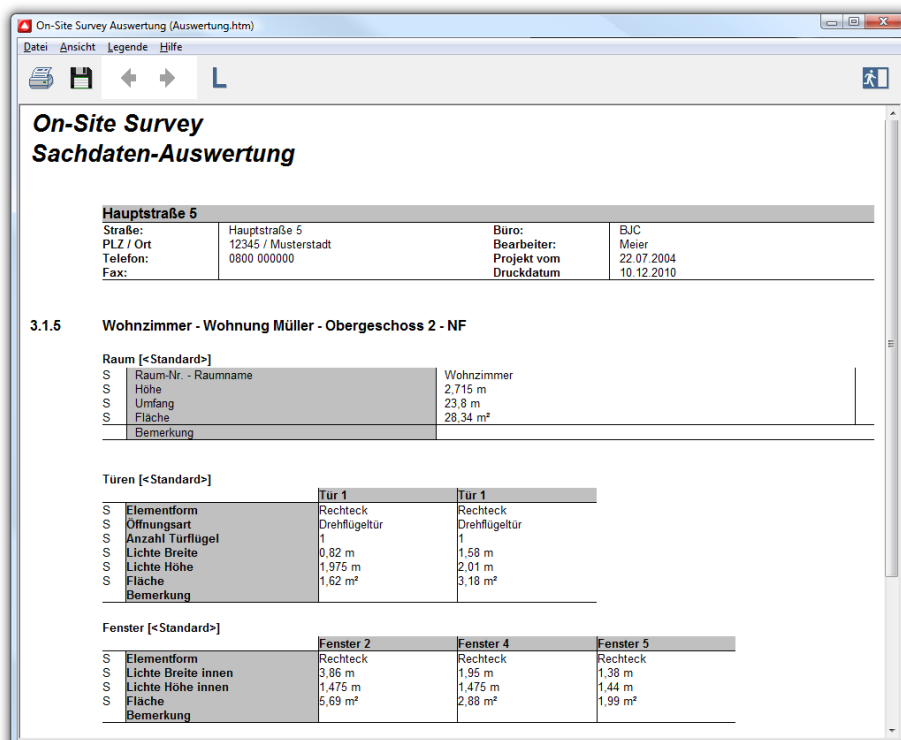
The documentation generates a separate ground plan for each room and a room description.



The photos belonging to the room are automatically arranged and displayed on the document. Thus a basis for preparing an object documentation is provided.

5.3.2.5.4 Utilization of additional data

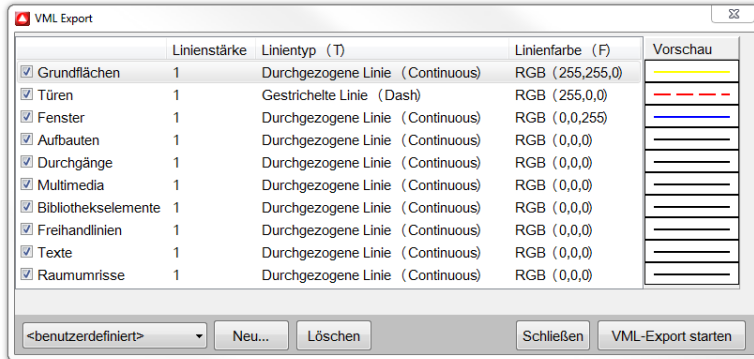
The utilization of additional data provides a type-specific listing of the additional data included in the corresponding level of the project structure.



5.3.2.5.5 VML and XML export

The VML export outputs the content of the drawing surface in the VML vector format which can be displayed in the Internet Explorer, version 5.01 minimum. Similarly to the DXF export, export options, e.g. line thicknesses and colors, can be defined in a separate dialog.

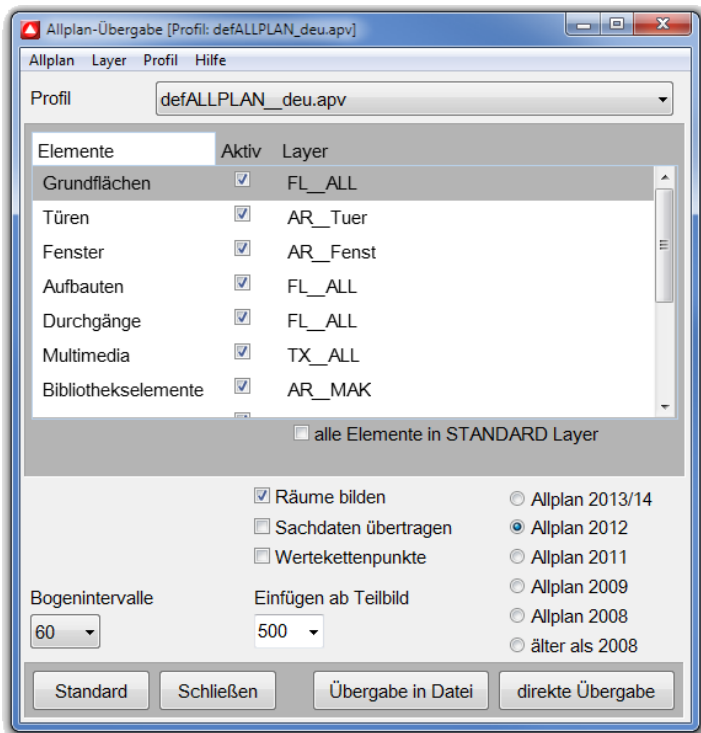
When the VML file is displayed in a web browser, a context menu with zoom functions can be activated using the right mouse button.



The XML export generates a file which saves the selected project part in the standard XML format. The export contains the project structure as well as the single elements with all relevant measures and features. The XML format is foreseen for the data exchange with other systems.

5.3.2.5.6 Allplan-Export

NEMETSCHKE Allplan users can transfer their survey data into CAD. The export is started in the reports using the button **[Allplan Export]**. In addition, different export options can be selected (dialog below).



For the export of elements, an existing empty drawing section is automatically selected. In case no drawing sections are available, a new one will be created from the position "Insert from image section".

The On-Site Survey elements are exported into existing Allplan layers of the image section. Layer names which were assigned in the export dialog, but do not exist in Allplan are ignored. The elements will then be exported into the standard layer.

The standard configuration of the layers has been adapted to the German Allplan version.

The check mark behind the elements indicates that these elements are exported. If the check mark is removed, the elements will not be exported.

In case of an inactive layer "Walls", only 2D elements, otherwise 3D elements (windows, doors, niches) will be transferred.

The button **[Form rooms]** generates rooms in Allplan. Additional data can be exported in the XAC format using the button **[Transfer additional data]**. In the Allplan project, buttons are generated with links to additional data. The button **[Transfer value chain points]** allows to export points of value chains.

The factor for **Arch intervals** determines the representation accuracy for arched elements, e.g. arched wall, room elements with round arches etc. and can be set accordingly. A new value is selected from the list.

[Direct transfer]

On-Site Survey directly transfers data to Allplan 2006 to 2014. The building structure (from Allplan 2008) is supported.

Allplan starts again or is activated if it was already open. The data to be exported are transferred and displayed in the currently active view or animation. The project can be saved in Allplan as file.

Possible overlaps with existing drawing data can be hidden by switching the underlying drawing sections invisible.

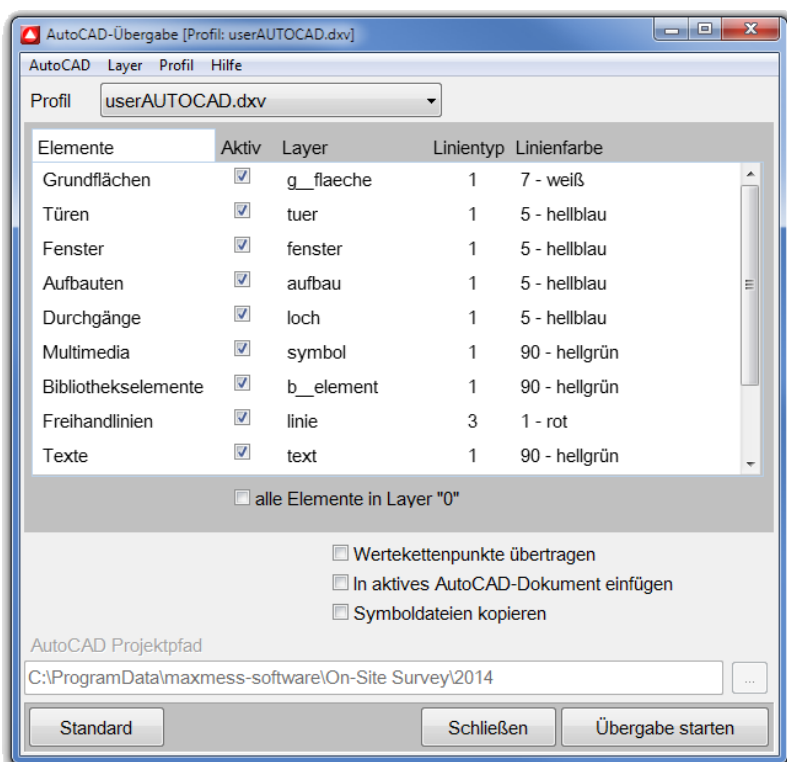
[Write into file]

On-Site Survey writes data into an XML file. This XML file is saved under a known path and can be transferred or opened in Allplan via the XML import plugin or using Drag & Drop in a drawing window of Allplan.

Allplan wall intersections (interactions) are deactivated during the export of On-Site Survey data and have to be manually inserted in Allplan for the exported walls.

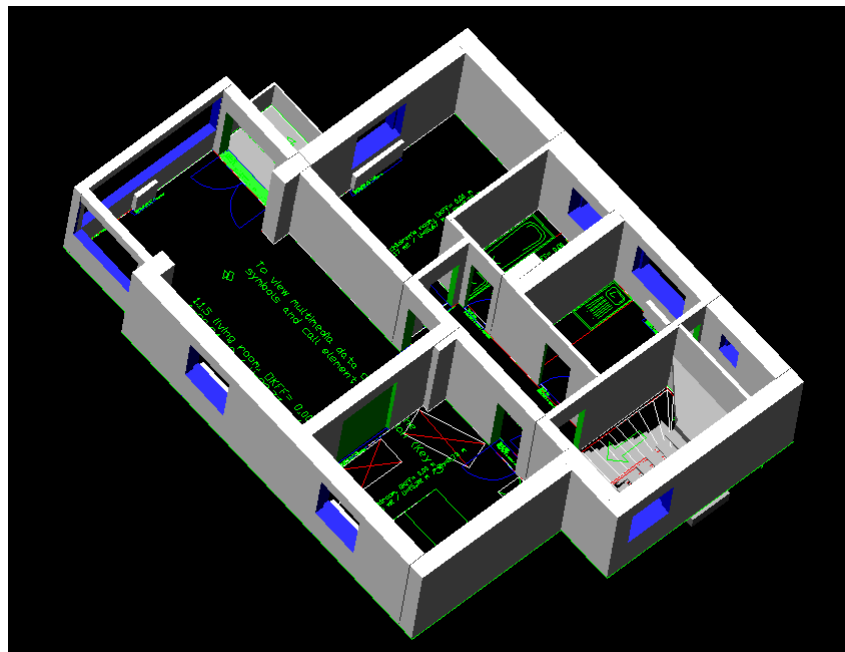
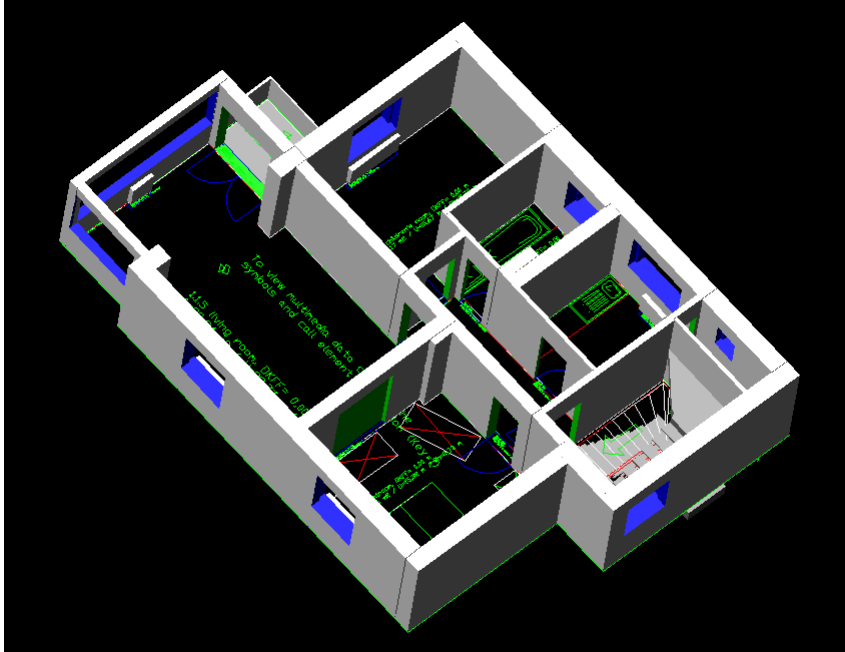
5.3.2.5.7 AutoCAD export

For AutoCAD users an ActiveX interface has been developed. The export is started in the reports using the button **[AutoCAD export]**. In the following dialog the settings for the AutoCAD export can be made.



A list of On-Site Survey element types for the layer assignment control is displayed. Each element type can be exported into a separate layer. The button **[Active]** defines if these elements are to be transmitted. The column **[Layer]** indicates the layer to which the elements are transmitted and allows to modify the assignment. By clicking on the layer name, a selection allowing to assign and to modify the layers will appear. By clicking on the columns **[Line type]** and **[Line color]**, the line color and the line type can be defined. If all elements are to be exported into a layer, the button **[all elements in layer "0"]** is switched on.

In case the element type "Walls" has been activated, On-Site Survey will generate 3D solids with openings in AutoCAD.



Using the button **[Transfer value chain points]** you can choose whether the value chain points are to be exported, too. If the button **[Insert in active AutoCAD document]** is activated, the data are pasted into the active AutoCAD document. Otherwise a new AutoCAD document will be created. During the transmission of symbol files, hyperlinks, i.e. references to symbol files, are transferred to AutoCAD. The button **[Copy symbol files]** defines how the transfer of hyperlinks is performed:

Copy symbol files: The symbol files are copied into the directory indicated. In AutoCAD the hyperlink is transferred as relative path. (network workstation)

Do not copy symbol files: The symbol files are located in the On-Site Survey project path. In AutoCAD an absolute path is transferred as a hyperlink. (local workstation)

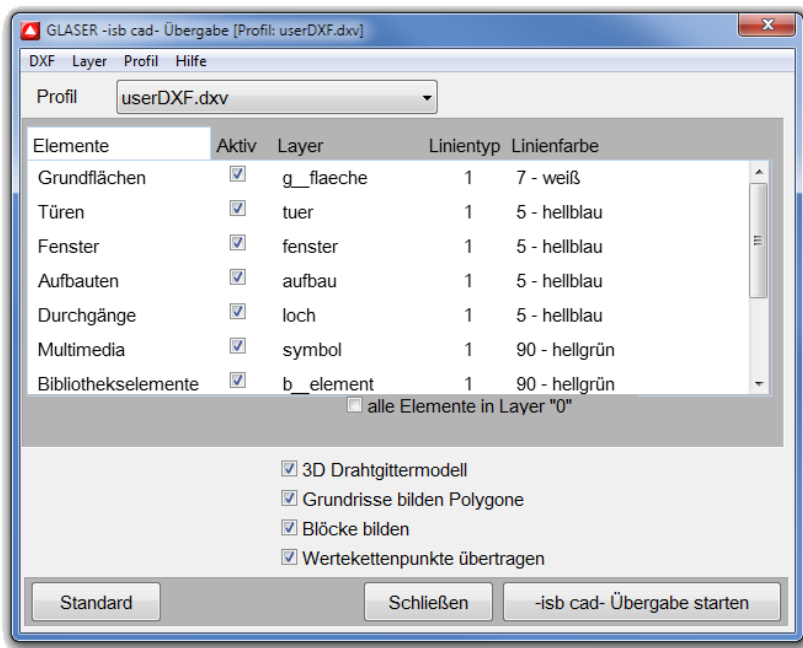
Export settings can be saved as profile via the menu **Profile-Save as** and will thus be available for later exports.

5.3.2.6 GLASER – isbcad export

An optional export interface has been developed especially for GLASER –isb cad- users. The export is started in the reports via the button **[GLASER-isb cad transfer]**.

The GLASER–isb-cad export is only available at GLASER GmbH and its partners.

The following dialog offers different export options.

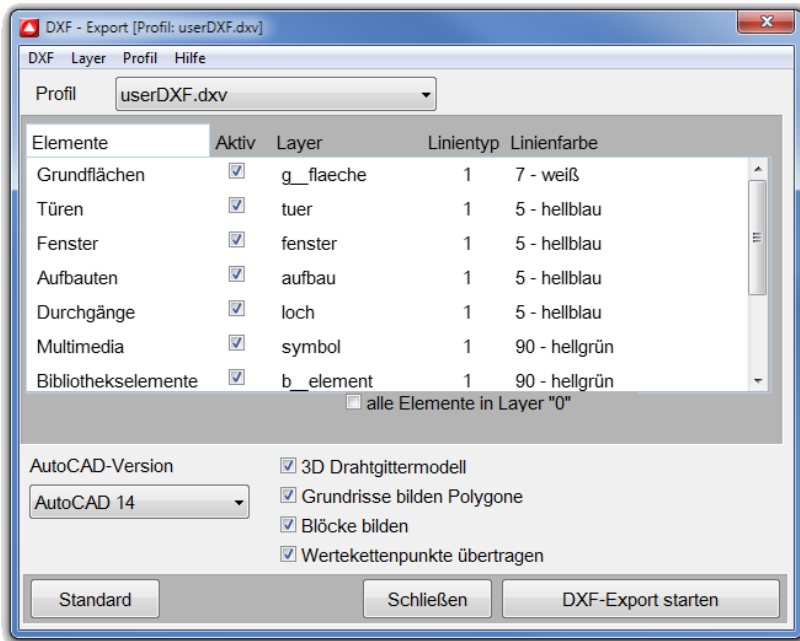


The check box **[3D grid model]** defines if the data are exported as 3D model or 2D ground plan. If the button **[Ground plans form polygons]** is activated, room contours will be exported as polylines. Via the button **[Form blocks]** you can choose whether the blocks are to be formed, i.e. whether the On-Site Survey elements are to be united in groups. The button **[Transfer value chain points]** allows to export points of value chains.

The upper area of the form controls the layer assignment. All element groups in On-Site Survey can be exported into freely defineable layers. User-defined configurations can be saved and loaded at a later time.

5.3.2.6.1 DXF export

On-Site Survey contains a DXF export which allows to transfer survey projects to various CAD systems.



The DXF file is generated in a selectable AutoCAD format. The DXF format is supported by AutoCAD 14 and 2000. The check box **[3D grid model]** defines if the data are exported as 3D model or 2D ground plan. If the button **[Ground plans form polygons]** is activated, room contours will be exported as polylines. Via the button **[Form blocks]** you can choose whether blocks are to be formed for single elements, e.g. the lines of a door. Via the button **[Transfer value chain points]** the chain points will be exported as follows:

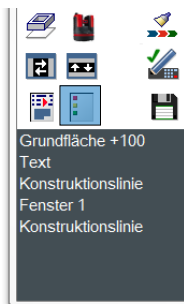
Room At the measured value points, lines with a length of 15 cm are marked off outwards.

Project The measured value points are displayed as a line cross with a size 10 cm.

The upper area of the form controls the layer assignment. All element groups in On-Site Survey can be exported into freely defineable layers.

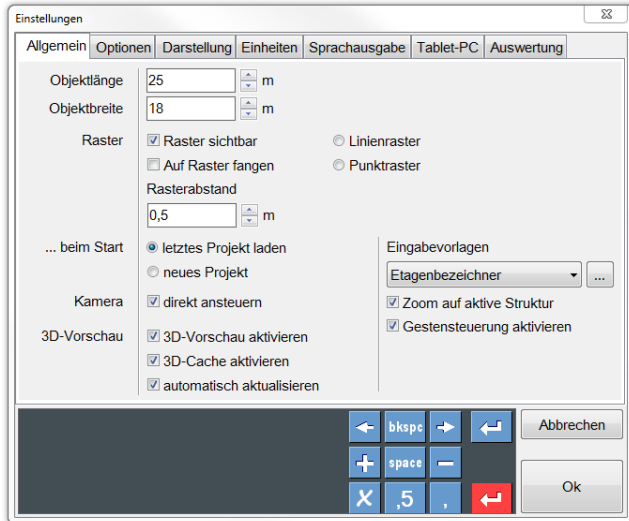
User-defined configurations can be saved and loaded at a later time.

5.3.2.7 Program settings



The program settings are started under **Project-Settings** or via the corresponding button shown. The settings are divided into six tab sheets.

5.3.2.7.1 Tab sheet General



The **grid distance** allows an orientation during the work with On-Site Survey.

The settings for **object length and object width** must ensure that the greatest dimensions of the survey object fit into this area. On-Site Survey does not accept inputs resulting in coordinates that are situated far beyond the object length and object width. Object length and object width can be modified at any time.

The **input templates** consist of data records created by the user. The data records can be chosen during the work with On-Site Survey. Thus room captions can be entered or selected in a list. The following input templates can be created:

Project management:

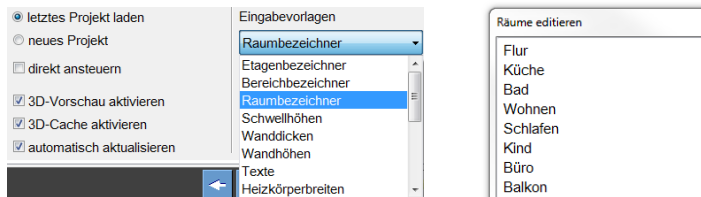
- Storey identifier
- Area identifier
- Room identifier

Room elements:

- Threshold heights
- Wall thicknesses
- Wall heights
- Heater widths
- Heater heights
- Heater depths
- Text

Additional data:

- Room types
- Door types
- Window types
- Heater types
- Passage types
- Recess types
- Library types



The **grid** can be displayed as **line grid** or **point grid**. The snap on grid points does only make sense in exceptional cases.

At the start On-Site Survey can load the last project (standard) or always start a new project.

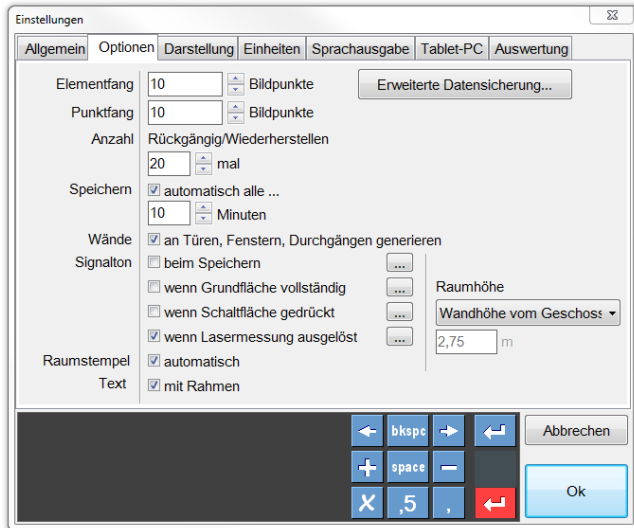
The button **Camera direct connection** is activated, if On-Site Survey is used with a DirectShow capable web cam. If the button is activated, the multimedia data video, image and audio are directly recorded by the camera in On-Site Survey.

If **Zoom to current structure** is activated, On-Site Survey will automatically zoom to the current structure. Thus a room or an area will automatically fill the drawing surface.

If the **3D preview** is activated, On-Site Survey will show a 3D preview of the project area in the upper left or right screen area.

The button **Refresh automatically** means that the 3D preview is automatically updated each time a modification takes place in the room.

5.3.2.7.2 Tab sheet Options



The **element snap** defines the maximum distance to select elements on the drawing surface. This snap radius is indicated in pixels and thus remains constant for each enlargement level. In order to catch the desired end point if the end points are arranged closely to each other, you can zoom into the area. The element snap catches on each line of a drawing object.

The **point snap** catches end points, center points and perpendicular points and allows the exact construction of drawing objects.

The number of **undo/redo** steps refers to the number of actions per room. The preset value is sufficient for normal work. A higher number of steps requires an increased main memory capacity. These actions get lost if you quit the project or program.

The button **Save automatically** is activated as standard for your projects. This minimizes possible data losses even in case of power failure. Preferably, this button should not be deactivated. The time indication defines the storage interval in minutes.

If the button **Generate walls** is activated, wall pieces will be generated simultaneously when constructing room elements: doors, windows and passages, in case the room elements cannot be created on an existing wall.

In On-Site Survey the actions *Save*, *Base surface complete*, *Button pressed* and *Laser measurement started* can be linked with individual **beeps**. This allows an acoustic feedback if, for example, a button click with the pen has been recognized and the desired command is started.

Room stamp automatic automatically generates a room stamp when the first base surface is positioned. The room stamp can optionally be generated **with a frame**.

A click on the button **Advanced backup** will activate this function. Values for the time interval, the maximum number and the path can be entered.

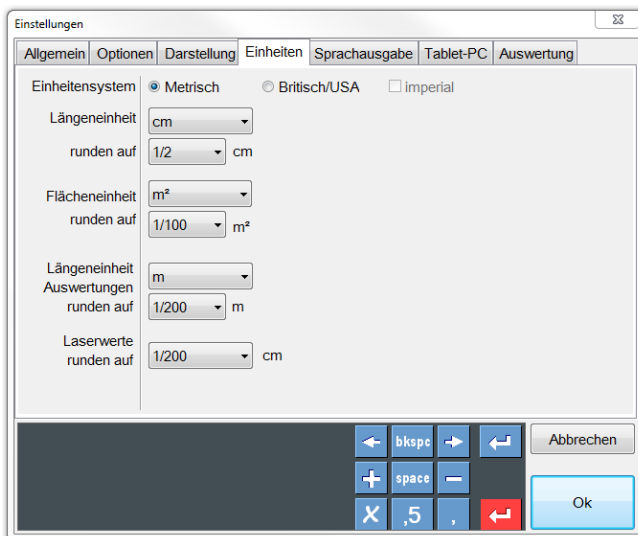
The **Room height** can be set as a fixed value transferred from the floor or the last room.

5.3.2.7.3 Tab sheet View



This tab sheet allows to set the **colors** of elements and element states. These colors are saved on the computer and used for all projects. When working with scanned templates, the representation with transparency (GDI+) is more suitable.

5.3.2.7.4 Tab sheet Units



Two unitary systems are available: Metric and British/USA.

In the British/Anglo-American unitary system the imperial system can be additionally selected for the input and display of lengths.

The imperial system shows lengths in the form 12' 3 1/4" (12 feet 3 inch 1/4 inch). The total length is the sum of the single values 12 feet + 3 inch + 1/4 inch.

It is possible to leave out parts of this term. If no unit is indicated, On-Site Survey will interpret the value in inch.

The field "Length unit" indicates the unit used in On-Site Survey for all lengths.

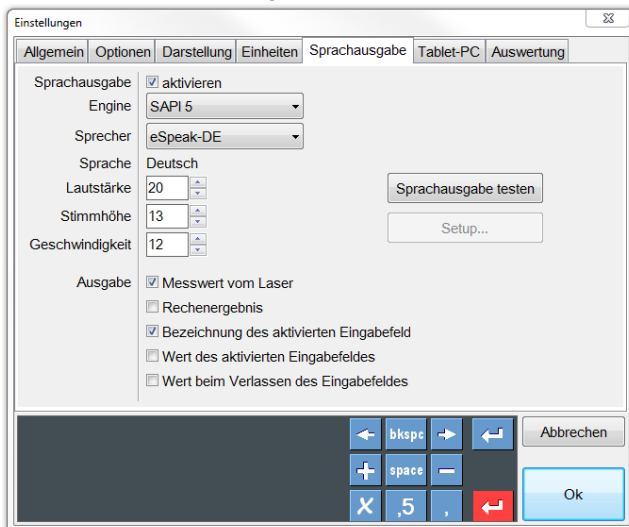
The "Area unit" defines the unit for indicating areas.

The "Length unit in utilizations" is only used for utilizations (reports). This unit indicates, for example, circumferences.

The "Volume unit" is used for the analysis of the ground plan elements (walls, windows, doors, passages).

For each unit a rounding can be selected. The rounding of the measured values transmitted by the laser device is separately set.

5.3.2.7.5 Tab sheet Speech

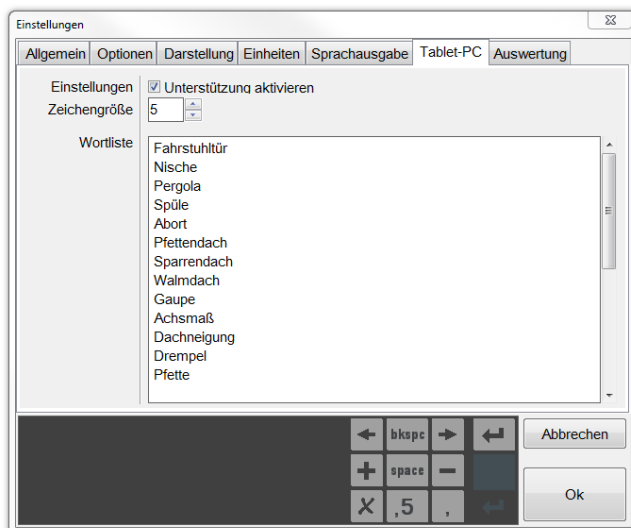


The speech output allows the acoustic verification of inputs. The speech is activated or deactivated. You can choose the speech engines SAPI 4 or SAPI5. SAPI4 can only be operated on 32 bit systems. As this system has been available for a long time, numerous voices are provided free of charge. The voices installed can be chosen in the list *Speaker*.

SAPI5 can be operated on 32 bit and 64 bit systems. At present, only a limited amount of voices is offered free of charge (see also chapter 2.2.2). However, many commercial providers of voices for SAPI5 exist on the market.

The settings regarding volume, pitch and speed (of speech output) allow an individual adjustment. In the check fields you can select which events are to activate the speech output.

5.3.2.7.6 Tab sheet Tablet PC



The tablet PC support is available on the following operating systems:

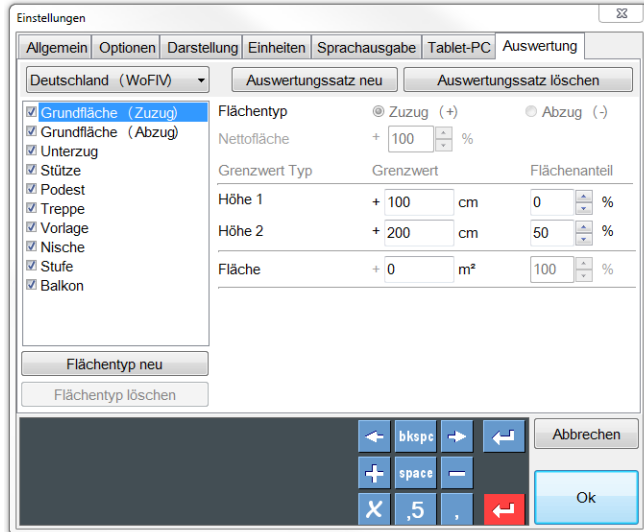
- Windows XP Professional Tablet PC Edition (included on tablet PCs)
- Windows Vista
- Windows 7
- Windows 8.x

If the support is activated, each dialog in On-Site Survey will be provided with an input area for the handwritten input of texts and measured values.

The character size indicates up to which pixel number the handwriting recognition is to automatically delete points or very short lines.

The word list extends the system-internal dictionary by proper names or technical terms. All words entered in this word list are preferably and reliably recognized by On-Site Survey.

5.3.2.7.7 Tab sheet Utilization



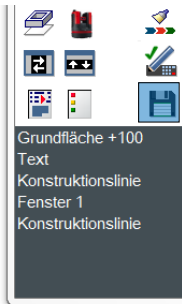
Depending on the surface type, the calculation criteria for addition and deduction can be defined or adapted. Furthermore, utilization sets can be set and user-defined surface types can be defined. The button "Utilization set new" allows to define a new set of individual rules for the area utilization. The first 10 surface types can only be changed under certain conditions as these are fixed surface types in Survey. A click on the button "Surface type new" allows to define user-defined surface types which can be selected in the base surface dialog (see 4.6.2 Base surfaces, further surface types).

The following conditions apply for the creation of surface types:

- Surface type: Addition (+) – this surface is added.
- Surface type: Deduction (-) – this surface is deducted.
- Net area: Proportion of the addition / deduction of the calculated gross area, in case no conditions are defined (no height 1, height 2, area, niche depth).
- Height 1: Limit value height 1 > Below the limit value, the set area proportion is reported until height 1. Above height 1, the net area is reported.
- Height 2: Limit value height 1 and height 2 > Below the limit value, the first area proportion set is reported until height 1. Between height 1 and height 2, the second area proportion is reported. Above height 2, the net area is reported.
- Area: Limit value area > Below the limit value, the set area proportion applies. Above the limit value, the net area applies.
- Niche depth: Limit value niche depth > Below the limit value, no gross area is reported. Below the limit value, the gross area is reported.

The option "Floor distance=0" is an additional condition applied in Germany for the consideration of gross areas for niches and recesses.

5.3.2.8 Save project



The button **[Save project]** allows to save the current project state on the hard disk.

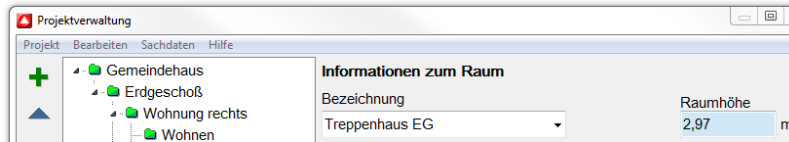
5.3.3 Component list



The component list contains all elements of the active room. By selecting a list entry, you can highlight the element on the drawing surface. By double-clicking on a list entry, you can open the feature window belonging to the respective element. In the component list, you can delete all components of the room by pressing the [DEL] key.

6 Walls

In On-Site Survey measured ground plans can be completed by walls. Walls increase the degree of completion of a survey project. Walls always belong to one storey, not to rooms or areas. A general wall height of a storey can be entered in the project management:



6.1 Generate walls

There are two ways to create walls:

1. Automatic generation at doors, windows and passages:

At these room elements wall thicknesses are directly determined. Thus an automatic generation of wall pieces is possible. To make this function available, the button **[Generate walls]** must be activated in the settings (see chapter 4.7.2.7.2). Walls are only generated if the room element is not constructed on an existing wall.

2. Manual construction of walls, arched walls and free walls:

Walls can also be constructed manually. If you move to an area or a storey in the project structure, the construction elements of the room will be replaced by wall functions. The following construction functions are available:

- Standard wall:

The standard wall is provided with parallel wall sides. The construction is performed by clicking on the basis points and subsequently selecting the wall thickness. The wall thickness is displayed in discrete levels. The defined wall thicknesses can be edited in the settings. Standard walls have a uniform height or form gable walls if they are drawn at the gable sides of attic rooms.

In case a wall with free wall thickness is to be drawn, the **CTRL** key must be pressed when selecting the thickness. You can also enter the wall thickness numerically in the input line. The wall thickness can also be edited later in the wall information dialog.

- Arched wall:

The arched wall represents walls with a radial curve. The arched wall is defined by four points. The first three define the arc (similar to the arc function for base surfaces, see chapter 4.6.2), the last point determines the wall thickness. The same rules as for the standard wall apply.

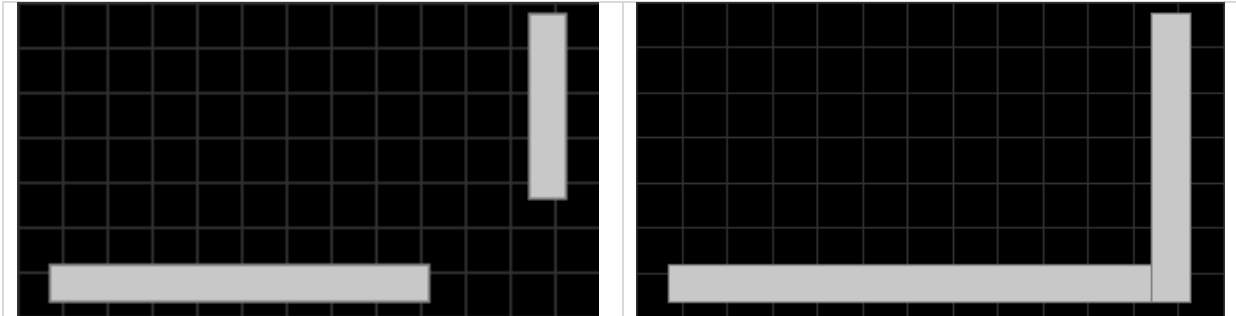
- Free wall:

The free wall consists of four corner points. It is constructed by clicking on the four corners. It is important that the first two points define the longitudinal edge of the wall and that then the width is marked off. Otherwise this wall cannot be intersected with other walls.

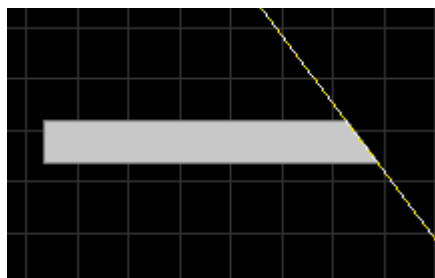
On-Site Survey is provided with numerous functions for adapting drawn walls. In order to manipulate walls, activate the function **[Wall intersection]**.

You will have the following possibilities then:

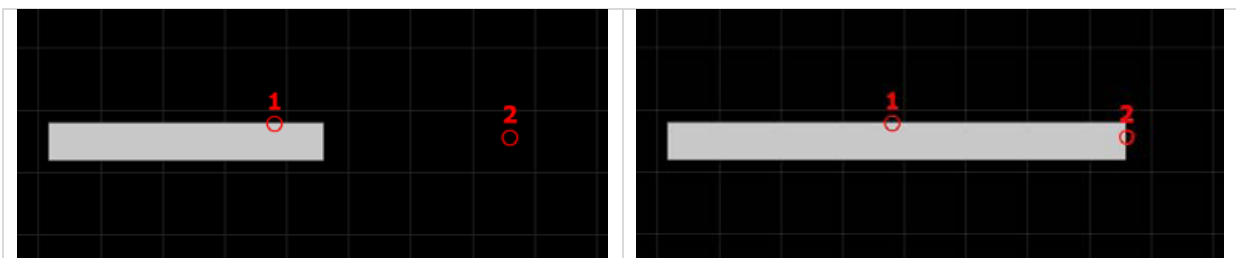
1. Selection of two walls:
The two walls are intersected. Also different wall types can be combined.



2. Selection of a wall and an auxiliary line:
The wall is shortened or extended up to the auxiliary line and intersected at this line.



3. Selection of a wall and free click point:
The wall is shortened or extended up to the click point. The wall side which is nearer to the first click point (the one for the selection of the wall) is processed.



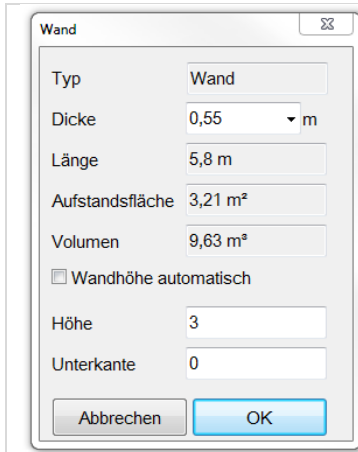
6.2 Wall heights

Apart from the general height of the walls of a storey, walls can also be provided with individual heights and lower edges. Heights and lower edges can be entered at two moments:



1. Prior to the wall construction in the wall height input area:

Enter the height and lower edge or select **<Storey>** to apply the height of the storey.

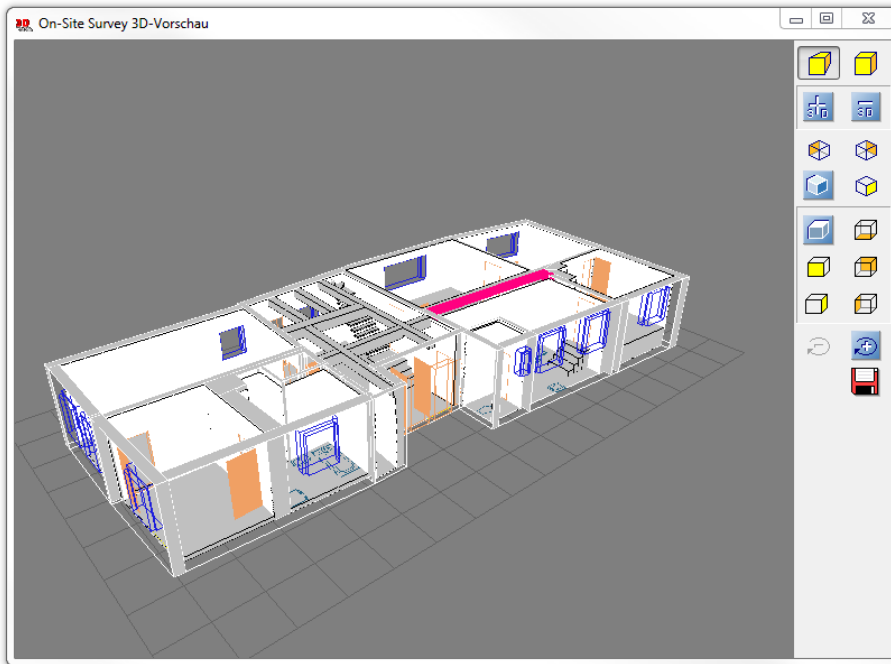


1. Subsequent modification in the wall information dialog:

Select the wall or walls whose height you want to change. Go to **Extras – Element information**. Now the heights can be edited.

6.3 View / utilize / export walls

Wall data can be visually checked in the 3D grid preview. In the project structure, change to an area, a storey or the project and select [**3D preview**]. The walls will be highlighted in different colors).



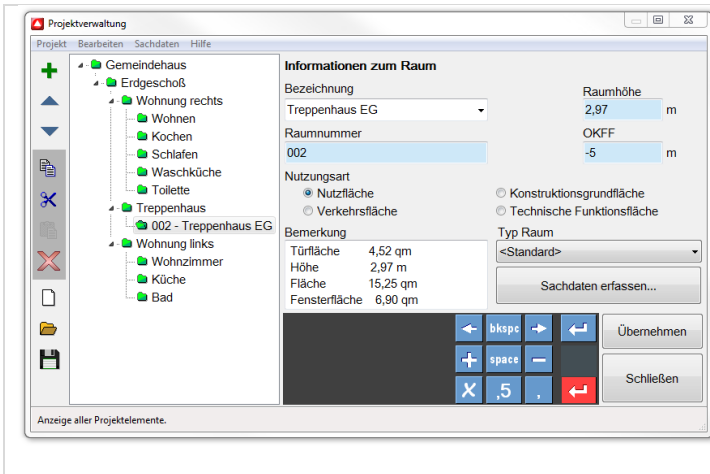
You can get information about single walls by selecting one or several walls and choosing [**Element information**].

In order to utilize, print or export walls, a storey or a project must be selected. Walls are utilized in the lower section of the room book (see chapter 4.7.2.5.1).

7 Additional data



On-Site Survey offers a separate module for recording additional data, e.g. in facility management projects.



The additional data are recorded in the project management right to the project structure.

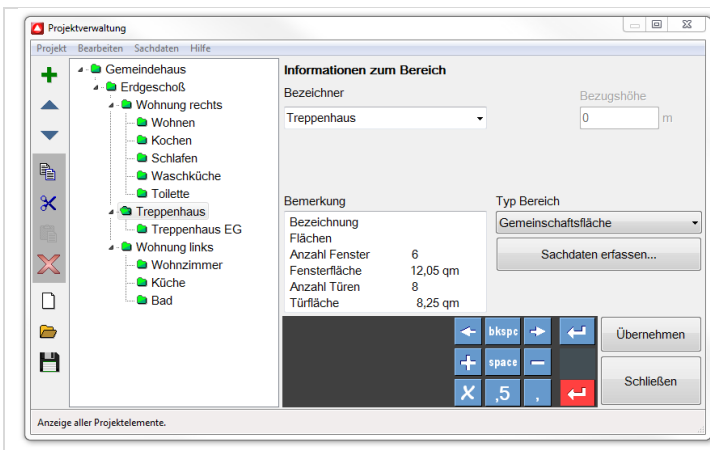
Using the additional data configurator, project-specific recording sheets can be designed, edited or taken over from exports of the additional data manager.

The additional data are entered on site.

Separate templates for the project, the storeys, areas and rooms and room elements are available.

Different type classes can be defined for rooms and room elements. The type lists for rooms and room elements are created in the settings (see tab General). The additional data designer allows to design type-specific recording sheets for each room or element type.

On-Site Survey makes survey results available as system variables. System variables can be integrated in the recording sheets. These additional data will then be automatically written in the recording lists.



The On-Site Survey 2014 standard installation comes with an additional data standard configuration.

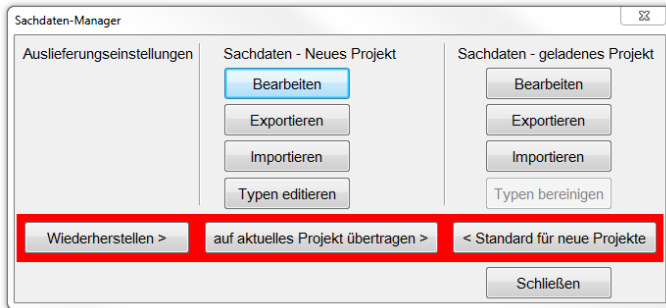
When a new project is created, templates with system variables for standard rooms and room elements are generated.

When you change to another room / room element type, the standard configuration will be deleted.

7.1 Additional data manager



The additional data manager allows to select the creation method for the configuration of additional data and is opened in the menu **Extras – Additional data manager** or in the **Project management** in **Additional data – Additional data manager**.



Here you can either select an additional data configuration according to default or a transfer from another project, or you can define the additional data configuration of the current project as standard for new projects.

In addition, the additional data configurations of the new or loaded project can be edited, exported or imported. A type adjustment is also possible.

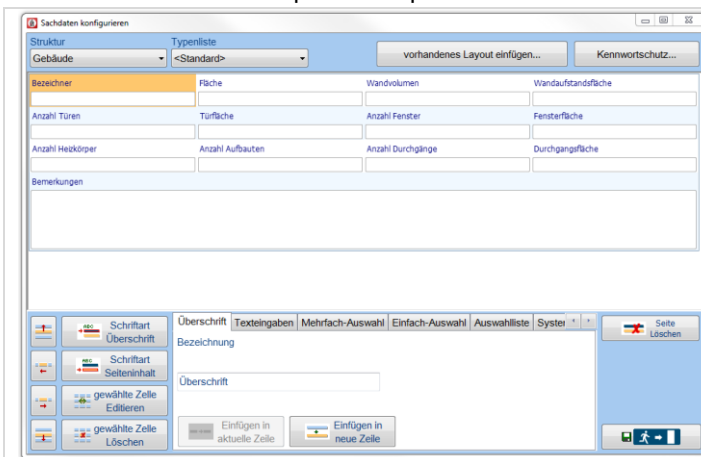
Additional data templates are exported and imported to share them on several mobile survey stations. The additional data input lists are saved in the project file. The additional data template can be printed for documentation purposes. All masks as well as the current date are printed.

7.1.1 Configure additional data

P

The method of additional data configuration for creating input masks for the recording of additional data can be selected in the menu **Additional data manager** (see 6.1).

For project-related adjustment of the additional data configuration, the buttons **Edit, edit types** allow to access the respective input mask.



Individual input masks can be designed for each selected structure: project, storey, area, room or room elements.

Select type list
 Insert existing layout
 Password protection
 Additional data - recording list structure
 Input fields - kinds
 Input fields - types

7.1.2 Select type list

P

For a current structure, type lists can be selected from different structure elements if the recording features of the additional data are similar or identical. In this case, only small adjustments are necessary for the current structure object. A time-consuming creation of a recording structure for additional data is not required.

7.1.3 Insert existing layout

P

If a recording layout for a structure element is available, it can be imported here.

7.1.4 Password protection

P

The password allows saving the consistency of a project. If a password is used, the additional data structure can only be changed when the password has been entered by a project administrator. Although the additional data acquisition can be changed at any time we recommend developing a structure applicable for the whole project within the framework of the project preparation

7.1.5 Additional data – recording list structure

If recording lists are not available or cannot be imported from other projects (significant deviations), their creation is indispensable. For this purpose, the lower area of the form contains buttons for creating the additional data recording list structure per structure element based on the selection in the field **Structure** as well as buttons for arranging, deleting or editing entries. Furthermore, fonts for titles and contents can be determined.

The structure elements **Title**, **Text inputs**, **Multiple selection**, **Single selection**, **Selection list**, **System variable and Empty line** can be combined. They can be arranged via the arrow buttons in the lower left area.

For each structure element, a meaningful caption can be entered (input field below caption).

7.1.6 Input fields – kinds

Three different fields are provided:

1. must be filled in – compulsory fields
2. can be filled in – optional fields
3. system variables – are automatically filled in by On-Site Survey

Compulsory fields are marked red until they are filled in. In the project structure a structure unit (room) is marked red until all compulsory fields are filled.

On-Site Survey determines system variables from the project structure or the graphic. System variables cannot be edited. System variables are refreshed automatically with each modification. On-Site Survey provides a great number of system variables to choose from. (see Annex system variables)

7.1.7 Input fields – types

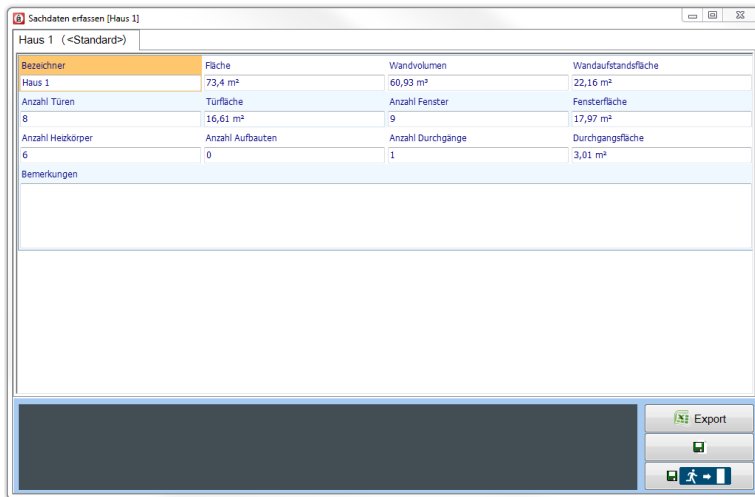
Compulsory and optional fields are of one of the following types:

1. free input
2. multiple selection
3. single selection
4. list box

If a list box is selected, another input field will open in which you can enter the desired list information.

7.1.8 Record additional data

As soon as the additional data recording structure is available or has been created for the current project (see 6.1.5 ... 6.1.7), the additional data can be recorded. For this, use the button **Record additional data** in the menu **Project management, Additional data, Record** or in the **Project management**.



7.1.9 Export additional data P

The export of additional data offers three formats:

Export of additional data into a XML file. The structure of the XML file (DTD) is also recorded in the XML file in order to facilitate the import into other programs. For exporting the whole project (data+geometry) the XML export in the utilizations (reports) is available.

Export of additional data to Excel. The data can be directly processed in Excel. You can choose whether the export data are written on one or several sheets.

Export of additional data into an ASCII text file.

7.1.10 Import / export additional data P

Existing additional data definitions can be exported and imported. Both commands allow to share the configuration on different survey systems. Depending on the command, an *.mxv file is exported or imported.

XMV import:

The data in the XMV file must correspond to the loaded additional data template. If the data do not correspond to the data structures, the following behaviour will be the result:

- Attributes that exist in the XMV file, but not in the current project, are read over.
- Corresponding data are refreshed.
- Missing structure elements (rooms, areas, floors) are added to the project.

You can get information about single walls by selecting one or several walls and choosing **[Element information]**.



In order to utilize, print or export walls, a storey or a project must be selected. Walls are utilized in the lower section of the room book (see chapter 5.3).

8 Leica 3D Disto


The Leica 3D Disto device can be used for the survey of base surfaces if rooms are complicated or large, and if high requirements with regard to accuracy exist.

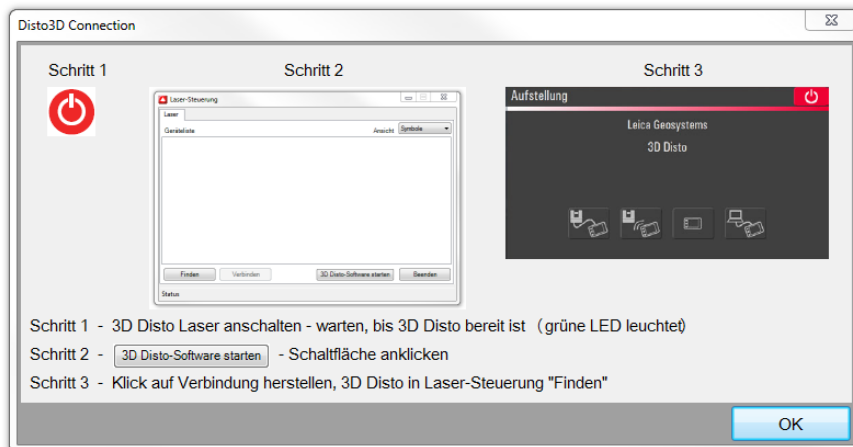
On-Site Survey 2014 has a direct interface to the Leica 3D Disto device.

8.1 Setup WLAN connection / install software

Before a connection to the laser device can be established, the device needs to be initialized in the Windows WLAN interface. Therefore, the Leica software 3D DISTO is to be installed on the Windows survey device (Leica_Geosystems_3D_Disto_2.1.0.0_setup). Then start the software and enter the license keys that were supplied for the 3D Disto of Leica (see Leica 3D Disto UserManual 781129a de). After that click on the button  in order to establish a connection from On-Site Survey 2014 to the 3D Disto laser. A dialog  will open. It displays the order of actions for establishing a connection with the 3D Disto laser. Click on "Connect" to connect the device found. If the connection was successful, the camera picture will appear in the window of the 3D Disto software. Now the 3D Disto laser can be used for measuring rooms in On-Site Survey 2014.

8.2 Connect 3D Disto laser

After clicking on the button , the following dialog will start:



If the 3D Disto was connected (step 3), the camera picture will appear in the window of the 3D Disto software:



Click on the OK button. On-Site Survey 2014 will open the room scanner dialog.

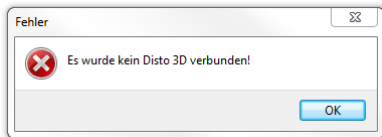
This dialog window shows the measured room points, and the 3D Disto can be disconnected or connected here. Besides the room height and the upper edge floor (OKFF) can be entered.

8.3 Disconnect 3D Disto laser

You can click at any time on the button **[Disconnect Disto 3D?]** or **[Connect Disto 3D?]** to disconnect or connect the 3D Disto laser device.

8.4 Problems

If no connection to the 3D Disto laser or a connection to a different laser was established, the following error message will appear:



There can be several reasons:

1. In the dialog "Find laser" a different laser device is found!
Set COM70 as favorite in the laser control dialog (step 2) under **Settings, Interfaces** and then click on Find. This port will be scanned first and if the connection is Ok, the 3D Disto should be found.
2. In the dialog "Find laser" no 3D Disto laser device is found!
For testing, establish a connection using a USB cable and click on cable connection. If testing was successful, check the WLAN connection between your windows device and the 3D Disto.
3. All attempts have failed.
Solution: Continue the troubleshooting based on the descriptions which are part of the hardware.

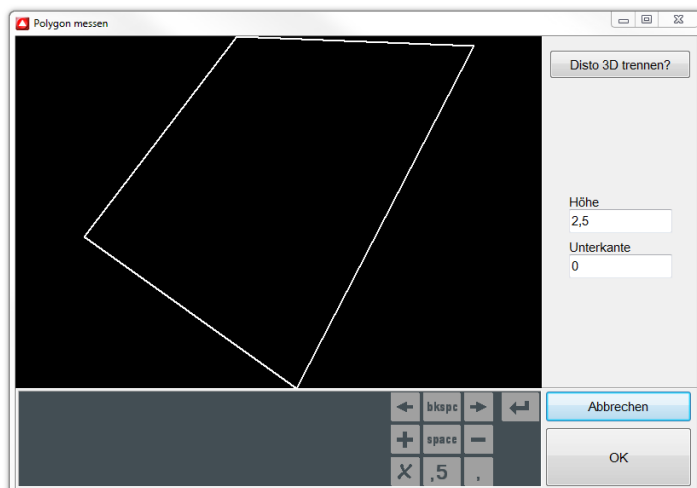
8.5 Working with the 3D Disto laser device

If you are in the Measure polygon dialog, the measuring point of the laser can be set.



Click on the button to save the measured value.

The measuring points are connected with each other and graphically represented in the window of the Measure polygon dialog.



When all measuring points of the room have been recorded, click on **OK** to close the polygon and transfer it to the drawing surface in the main menu.

9 Bluetooth laser devices

Today hand laser devices are the standard for recording measures. In addition, On-Site Survey supports the input of measured values determined by means of folding rules and measuring tapes. Laser devices with a wireless Bluetooth connection are ideally suited for the work with On-Site Survey. These devices considerably facilitate and accelerate the recording.

In On-Site Survey 2014, the hand laser devices Leica DISTO A6, Leica DISTO plus, Leica DISTO A8, Leica DISTO D8 and Leica DISTO D3aBT as well as Leica DISTO D110 can be used with the Leica software: "Disto transfer PC from version 4.06". Leica DISTO 810, D110 and D510 can only be used with Windows 8.1.

9.1 Set up Bluetooth connection

Before a connection to the laser device is established, a Bluetooth interface, incl. driver has to be installed on the Windows survey device. This applies for all Windows versions. You can access the Windows' Bluetooth environment via the task bar and the Bluetooth symbol or depending on the operating system via **Start>System control > Bluetooth devices** or the **Device manager**.

9.1.1 Bluetooth laser connection using Leica "DISTO transfer PC"

In order to use the hand laser Leica DISTO A6, Leica DISTO plus, Leica DISTO A8, Leica DISTO D8, Leica DISTO D3aBT and Leica DISTO D110, the Leica software "DISTO transfer PC from version 4.06" has to be installed on the Windows survey device. The connection to the Bluetooth laser is established via this software.

If the laser device has been switched on and Bluetooth activated on both devices, the search for Bluetooth devices in the environment will begin after the software "DISTO transfer PC" was started. The device found (this should be the device that was connected before with the software "DISTO transfer PC") will be connected immediately. In case of a successful connection, the Bluetooth icon at the laser will be active and the connection will be displayed in the "DISTO transfer PC" software. Now the Bluetooth laser can be used for the work with On-Site Survey 2014.

9.1.2 Bluetooth laser connection with Leica DISTO D810/D510

The Leica DISTO D810, D110 and D510 devices can only be used under Windows 8.x for data input. For connecting the Leica DISTO D810/D510 devices via the Bluetooth interface, no further software is required. When using the Leica DISTO D810/D510 devices for the first time under Windows 8.x, Bluetooth devices have to be added before in the operating system. Then these hand laser devices will connect automatically (Bluetooth icon active at laser, blue light).

9.2 Problems

If no connection to the laser is established, there can be several reasons for it:

1. The Bluetooth connection at the laser was not switched on.
Solution: Switch on Bluetooth at laser, close the application in the background: "DISTO transfer PC" (not required for Leica DISTO D810 touch), and restart.
2. No supported Bluetooth driver is available on the PC.
Solution: Install the Microsoft Bluetooth driver, then connect the laser with the software "DISTO transfer PC" (not required for Leica DISTO D810 touch).
3. All previous points are not applicable or all attempts failed.
Solution: Continue the troubleshooting based on the descriptions which are part of the hardware.

9.3 Working with the laser device

Please check whether the laser device settings of the measurement units correspond to the settings (see 4.7.2.7.4 Tab units). Also the rounding must be identical.

All values measured with the laser are transmitted to On-Site Survey at a push of a button (Bluetooth key on hand laser). This ensures a fast and error-free working method. The measured value is determined and shown in the display of the laser device.

By pressing the **[Bluetooth key]** the measured value will be transmitted from the laser to the current input field in On-Site Survey. If the transmission of the same measured value is repeated by pressing the **[Bluetooth key]**, On-Site Survey will switch to the next input field.

This control function allows to record several measured values one after another without any operation on the tablet PC.

10 Annex

10.1 Shortcuts

The following short keys facilitate the on-site work with On-Site Survey when using a notebook or netbook. You can see the shortcuts when you leave the mouse cursor over a button for a while.

Key	Function
Project	
[O]	Open project
[Ctrl + O]	Open project management
[S]	Save project
Edit	
[Ctrl + Z]	Undo
[Ctrl + Y]	Redo
[Ctrl + C]	Copy
[Ctrl + X]	Cut
[Ctrl + V]	Paste
[Del]	Delete
[M]	Measurement mode
[V]	Move
[D]	Rotate
[C]	Intersect walls
Zoom	
[F6]	Enlarge view
[F3]	Zoom to active structure
[F5]	Full screen
Elements	
[P]	Create polygon with fixed angles
[R]	Create rectangle
[G]	Base surface dialog
[T]	Create door
[F]	Create window
[H]	Create heater
[L]	Create construction line
[X]	Create library element
[W]	Create wall
[Ctrl + Del]	Delete element or measured value
Measure	
[Enter]	Apply measured value
[Arrow upwards]	Edit previous measured value or change of measurement direction
[Arrow downwards]	Edit next measured value or change of measurement direction
[M]	Measurement mode / selection mode
[B]	Initialize laser device
General	
[ESC]	Cancel action
[I]	Element information
[F1]	Help
[Alt + F4]	Close application
Key	Function

The shortcuts (except zoom functions) are switched off during the input of measured values in order to avoid that the measurement mode is quit unintentionally.

10.2 Abbreviations

For the representation of room element and/or room stamp values On-Site Survey uses abbreviations listed in the following table with their meaning:

Abbreviations

A	Area
BRH	Parapet height
LH	Opening height
LHI	Inner opening height
OKFF	Upper edge floor
Rh	Room height
SWH	Sill height
U	Circumference
UKUZ	Lower edge of beam

10.3 Base surface weightings

types	contour group	forms circumference	area weighting	is utilized	standard height	standard lower edge	filling	belongs to the development surface of the wall	belongs to ceiling surface	created in Allplan
base surface +100	0	yes	100	yes	room height	0	grey, RGB(10,10,10)	yes	yes	room
base surface -100%	0	yes	-100	yes	room height	0	cross hachure	yes	yes	room
attic room gable roof	0	yes	+100 / WoFIV	yes	room height	0	grey, RGB(10,10,10)	yes	yes	room
attic room one sided roof pitch	0	yes	+100 / WoFIV	yes	room height	0	grey, RGB(10,10,10)	yes	yes	room
beam	none	no	0	yes	0,2m	room height - height	none	no	no	beam if rectangular, otherwise ceiling
pillar	1	no	-100	yes	room height	0	grey, RGB(10,10,10)	no	no	pillar
platform	2	no	0	yes	0,3m	0	grey, RGB(10,10,10)	no	no	ceiling
opening for stairs	none	no	-100	yes	0	0	none	no	no	3D-lines
projection	0	yes	-100	yes	room height	0	none	yes	yes	room
auxiliary construction	none	no	0	no	0	0	none	no	no	3D-lines
step	none	no	0	yes	0,3m	0	none	no	no	ceiling
balcony +50%	0	yes	+50	yes	1m	0	none	yes	no	room
base surface -50%	0	yes	-50	yes	room height	0	diagonal hachure	yes	no	room

10.4 System variables

Project, storey, area and room

System variable	Content
Number of audios	Number of audio symbols in the corresponding structure layer
Number of recesses/niches	Number of recesses (niches) in the corresponding structure layer
Number of passages	Number of passages in the corresponding structure layer
Number of windows	Number of windows in the corresponding structure layer
Number of surfaces	Number of single base surfaces in the corresponding structure layer
Number of photos	Number of photo symbols in the corresponding structure layer
Number of heaters	Number of heaters in the corresponding structure layer
Number of sketches	Number of sketches in the corresponding structure layer
Number of texts	Number of text symbols in the corresponding structure layer
Number of doors	Number of doors in the corresponding structure layer
Number of videos	Number of video symbols in the corresponding structure layer
Identifier	Identifier of the corresponding structure
Reference height	Relative height with regard to the reference layer, only available in the plane
Passage surface	Area of the passages in the corresponding structure layer
Window surface	Area of the windows in the corresponding structure layer
Area	Area of the corresponding structure layer (room, area, storey, project)
Height	Room height, is only available in the room
Kind of use	Kind of room use, is only available in the room
Upper edge floor	Height of upper edge floor of the corresponding room, with regard to the current layer (is only available in the room)
Room dimensions (rectangle)	Dimensions of the greatest possible rectangle area within the room, is only available in the room
Room number	Number of the room, is only available in the room
Room number – room name	Name of the room if it has been provided with a number, is only available in the room
Side faces	Area of the room faces in the corresponding structure layer
Door surface	Area of the doors in the corresponding structure layer
Circumference	Room circumference, is only available in the room
complete	Indicates if all mandatory additional data of the corresponding structure have been recorded.

Door

System variable	Content
Number of door leaves	Number of door leaves to be opened
Identifier	Name of the corresponding door
Element form	Form of the corresponding door (semicircular arch, etc.)
Area	Area of the door
Clear width	Dimension of the inner door width
Clear height	Dimension of the inner door height
Support height	Height dimension up to the beginning of the semicircular

	arch
Kind of opening	Kind of door opening (swing leaf, sliding door, etc.)
Wall thickness	Wall thickness at the corresponding door

Window

System variable	Content
Identifier	Name of the corresponding window
Element form	Form of the corresponding window (pointed arch, etc.)
Area	Area of the window
Clear width outside	Dimension of the outer window width
Clear width inside	Dimension of the inner window width
Clear height inside	Dimension of the inner window height
Support height	Height dimension up to the beginning of the semicircular arch
Wall thickness	Wall thickness at the corresponding door

Heater

System variable	Content
Identifier	Name of the corresponding heater
Width	Width of the heater
Area	Area of the heater
Height	Height of the heater
Depth	Depth of the heater
Wall distance	Distance from wall to heater

Recess

System variable	Content
Identifier	Name of the corresponding recess
Width	Width of the recess
Element form	Form of the corresponding recess (triangle etc.)
Area	Area of the window
Height	Height of the recess
Support height	Height dimension up to the beginning of the semicircular arch
Depth	Depth of the recess

Passage

System variable	Content
Identifier	Name of the corresponding passage
Element form	Form of the corresponding passage (semicircular arch etc.)
Area	Area of the passage
Clear width	Dimension of the inner passage width
Clear height	Dimension of the inner passage height
Support height	Height dimension up to the beginning of the semicircular arch
Wall thickness	Wall thickness at the corresponding passage

Library element

System variable	Content
Identifier	Name of the corresponding library element

10.5 User-defined room stamp

The room stamp is adjusted in the file C:\Program Data\On-Site Survey2011\settings.ini in the section [room_label]:

```
[room_label]
line1=%index%%name%, OKFF= %floor_offset%
line2=A=%area% / U=%circumference% / Rh=%height%
```

The following variables are available for the room stamp:

Variable	Meaning
%circumference%	circumference of room
%room_usage%	kind of use
%area%	area
%height%	height
%caption%	caption
%#superstructures%	number of superstructures
%#windows%	number of windows
%#holes%	number of passages
%#heating%	number of heaters
%#doors%	number of doors
%#baseforms%	number of base surfaces
%#photos%	number of photos
%#audios%	number of audios
%#texts%	number of texts
%#videos%	number of videos
%#complete%	additional data, complete
%#sketches%	number of sketches
%floor_offset%	UEF
%wall_surface%	wall surface
%door_surface%	door surface
%window_surface%	window surface
%passage_surface%	passage surface

Furthermore, any additional data can be integrated in the room stamp. The corresponding format is:

```
%fmIdentifier%[Beginning,Number]
```

Identifier is the name of the additional data field.

(ATTENTION: In front of the identifier, the characters *fm* are to be placed!)

Beginning and *Number* define the area shown. *Beginning* (≥ 1) indicates the position of the first character, *Number* indicates the length. If number = 0, all characters are displayed from the *Beginning*.

The square brackets can be left out. In this case all the additional data are displayed. This corresponds to the value: [1,0]

We wish you much success with On-Site Survey 2014!

We would be grateful for your recommendations to improve the software and this manual.