

VisualARQ

User's Guide

TABLE OF CONTENTS

Table of Contents	2
VisualARQ Setup	4
Hardware Requirements	4
Installer	4
VisualARQ Directory Structure	4
VisualARQ Interface	5
VisualARQ Toolbars	5
VisualARQ Dialogs	5
Command Bars	6
VisualARQ Objects	7
Wall	7
Control Points	8
Wall Alignment	8
Wall Style	8
Door	9
Control Points	10
Door Style	11
Window	11
Control Points	12
Window Styles	12
Column	13
Control Points	14
Insertion Point	14
Insert Mark	14
Offset	14
Column Style	14
Stair	15
Control Points	16
Parameters	16
Style Parameters	16
Steps	17
Flight Parameters	17
Landing Parameters	17
Space	18

Control Points	19
Parameters	19
Style Parameters	19
Railing	21
Control Points	21
Roof	22
Table	22
Control Points	22
Style Parameters	23
Field Parameters	23
Linear Dimension	24
Control Points	24
Automatic Dimension	25
Section / Elevation	25

VISUALARQ SETUP

Current VisualARQ version requires Rhinoceros 4.x to run. Rhino 3.0 and Beta versions are not supported. Therefore, VisualARQ will not load.

Hardware Requirements

VisualARQ hardware requirements are the same as for Rhino 4.0:

- Pentium, Celeron, or higher processor
- Windows 2000 / Windows XP (Home or Professional)
- 200 MB disk space
- 256 MB RAM (512 MB or more recommended)
- OpenGL graphic card (recommended)







Installer

VisualARQ has a comfortable installation wizard that automates the installation process. It installs by default in:

C:/Program Files/Asuni/VisualARQ

VisualARQ Directory Structure

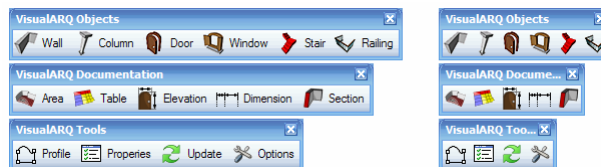
VisualARQ directory structure is as follows:

 VisualARQ	
 System	(binary)
 English	
 Help	(online help)
 Manual	(user's guide)
 Support	(templates, toolbars)

VISUALARQ INTERFACE

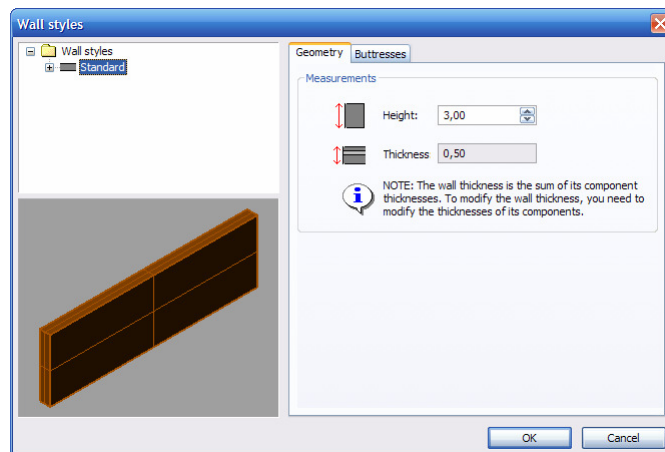
One of the main VisualARQ features is its interface: **simple** and **intuitive**. A common dialog style has been used in the entire program.

VisualARQ Toolbars



VisualARQ Dialogs

All dialog boxes have a tree on the right with the existing objects. You can comfortably add new objects to the existing list by clicking on the mouse when the group it belongs to is selected. A comfortable wizard will guide you through the entire process.



Properties or operations can be defined and will be specified in the right hand area.

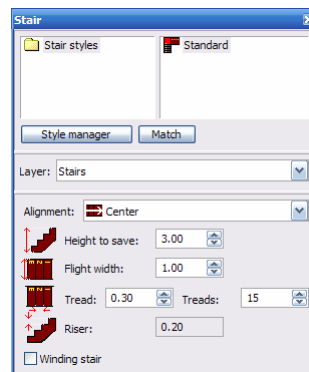
When you select an object and define its properties, the object will be displayed in the right bottom box. You can edit the viewport with the mouse, similarly to Rhino viewports:

- **Left button:** move the viewpoint parallel to the view plane, up, down, right or left.
- **Right button:** rotate the viewpoint relative to the target to view the full model from different points around it. The point from which it is being shown can move around the object.
- **Scroll wheel:** move the camera closer or farther to zoom in or out.

Command Bars

The command bars show the options for the objects being inserted. These can only be viewed within a command.

For example, the command bar in the *Stair* command is as follows:




You can change the stair data currently being inserted through this bar.

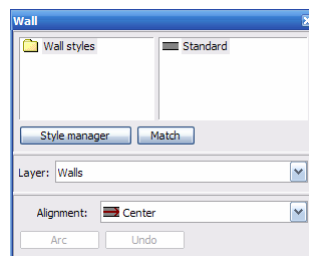
VISUALARQ OBJECTS

Wall

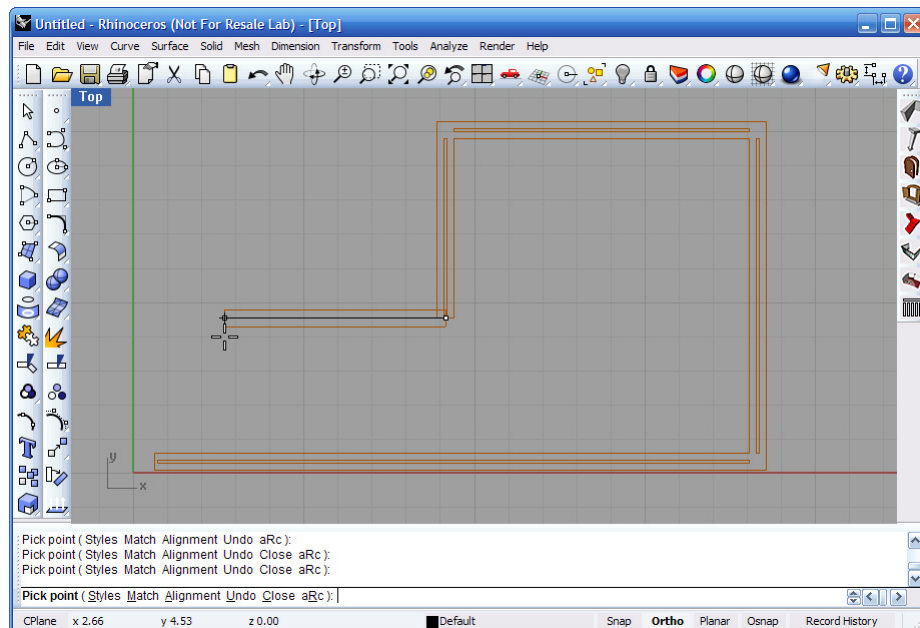
Walls are the basic VisualARQ entities. To insert walls:

- Command: "**_VisualARQ_Wall**"
-  **Menu** → **VisualARQ** → **Create** → **Wall**

Once you are in the command, the command bar will appear with the basic wall options.



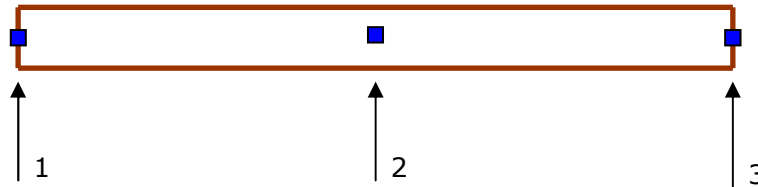
To draw walls simply specify the wall start point and continue marking its end points. Each new wall will be drawn following the previous one until you right-click **INTRO** or **ESCAPE**.



The command will ask for the following wall start point again but no wall will be created this time between this one and the previous one.

Control Points

The wall has 3 control points:



Start point

Center point: In straight walls it moves the wall and in arched walls it bends them.

End point

Wall Alignment

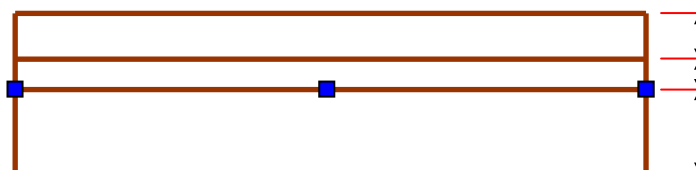
The wall can be aligned in 4 ways:

- Baseline: The wall is aligned based on the offset specified in the style.
- Center
- Right
- Left

Wall Style

The wall style defines the wall features. These are: number of components, measurements, buttresses, union radius, etc.

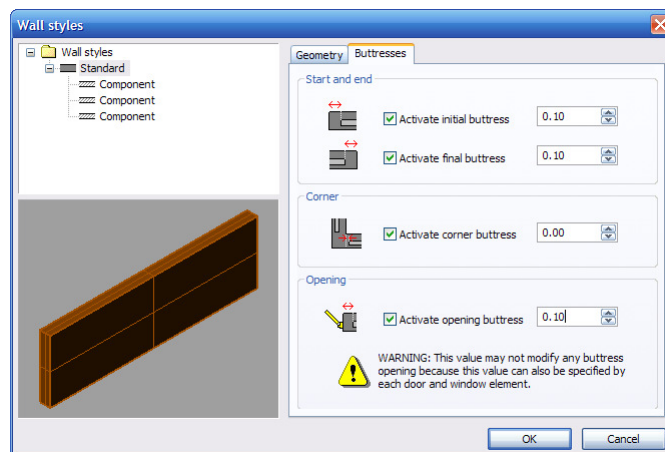
Add as many components as the wall may have when defining a wall. For example, if the wall is simple it will only have one component. However, if the wall has an air chamber, it will have 3 components: internal, chamber and external. The width will be specified for each component.



Intersections between walls are automatically fixed. The walls extend up to a nearby wall if it is within its union radius. The radius indicates the distance where the new wall baseline should be.


The buttresses are solid wall blocks. This means that the internal components will not be drawn in those blocks. There are four types of buttresses:

- **Start:** At the beginning of the wall.
- **End:** At the end of the wall.
- **Corner:** At the union of two walls by its ends.
- **Opening:** Buttress to the side of doors and windows. The value of this buttress can be specified by wall style or, later, by doors and windows.

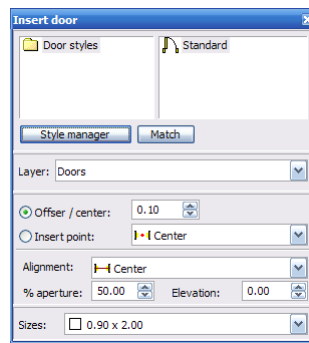


Door

Doors must be inserted within a wall. The union between doors and walls is done using an anchor. To insert doors, please run:

- Commands[[0422]]: "**_VisualARQ_Door**"
-  **Menu** → **VisualARQ** → **Create** → **Door**

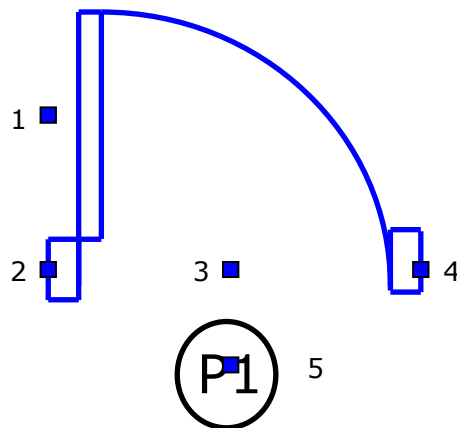
When running the command, you will be prompted for the door insertion point. Select the point where you want to insert the door and click with the left mouse button.



By moving the mouse, the command will show the door inside the wall closer to the mouse specifying the distance from the wall end. Click the right mouse button to confirm the exact distance where the door will be placed. When the point is selected, the command will add the door to the drawing. Next, specify the door opening side by moving the mouse and choosing one of the 4 options.

The opening corresponding to the door will be automatically drawn in the wall. If you want to move the door to another wall simply click on one of its insert points and drag it to the desired wall.

Control Points



1. Opening side
2. Left insert point
3. Insert point (center)
4. Right insert point
5. Reference mark point

Door Style

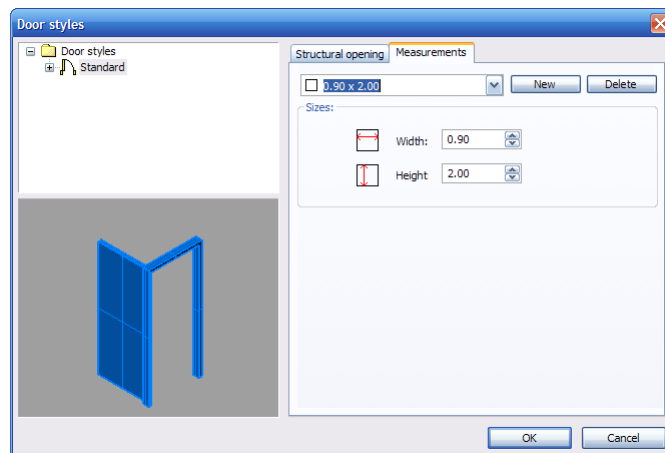
The door style defines the door features: shape, frame measurements, doorstop, number of leaves, etc.

The **door shape** or rough opening is defined by a profile. The profile can be *parametric* or generated by a *polyline*. There are some predefined parametric profiles in VisualARQ: rectangular, arc, semi-arc, gothic, etc.

The profile measurements will be specified when inserting the door and they will be different between the different doors of the same style.


The following components can be added to the door style:

- **Frame:** You can define the width and the thickness or adjust the depth to the wall width.
- **Doorstop:** You can define width and thickness.
- **Leaves:** You can add as many as you want. Leaf measurements will be specified when the door is inserted.

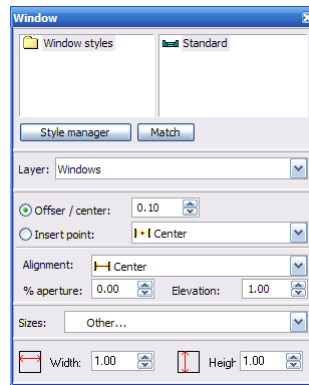


Window

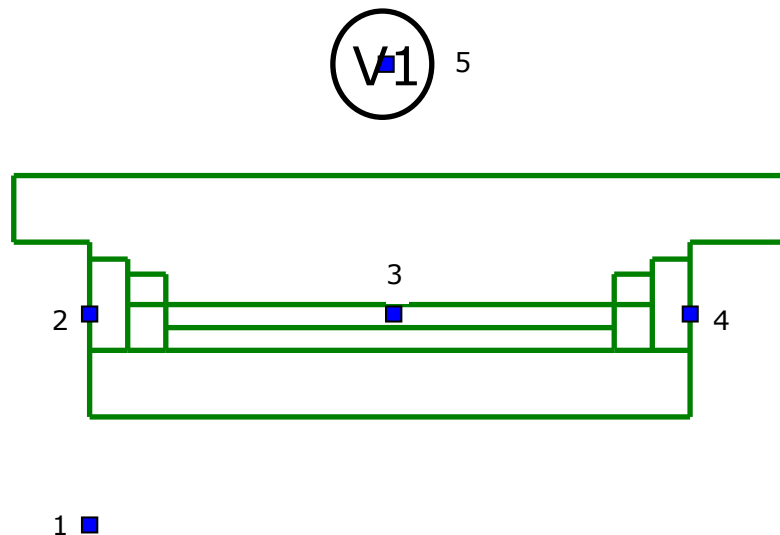
The windows work exactly like the doors. To insert a window, please run:

- Commands: "**_VisualARQ_Window**"
-  **Menu** → **VisualARQ** → **Create** → **Window**

The window command bar is:



Control Points

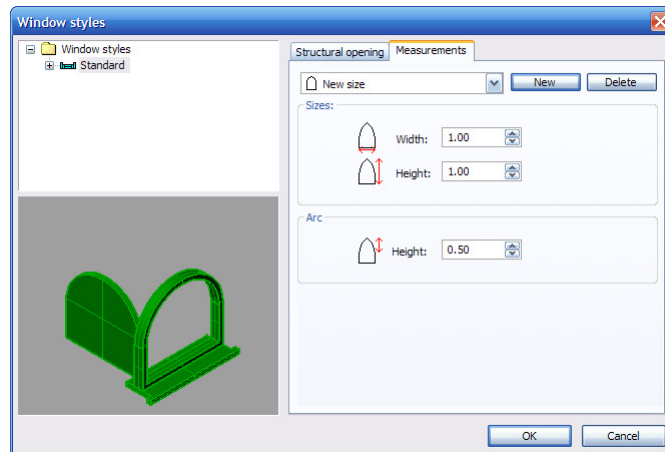


1. Opening side
2. Left insert point
3. Insert point (center)
4. Right insert point
5. Reference mark point

Window Styles


The window style defines the window features. The shape is defined by its profile, like the doors.

You can define the different components: frames, stops, leaves, glass and the different sill measurements (thickness, internal extension, internal depth, external depth and extension).



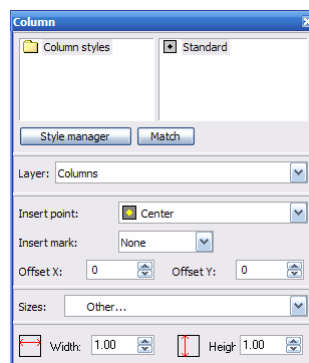
Column

To insert a column, please run:

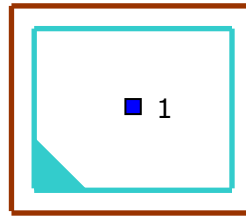
- Commands: **_VisualARQ_Column**
-  **Menu → VisualARQ → Create → Column**

Specifies how the column insert point will be specified. When the insert point has been picked, the command will ask you for the column orientation or direction. The command will insert the columns until it is cancelled (INTRO, ESCAPE or right-click on the mouse).

The column command bar is as follows:



Control Points



1. Insertion Point

Insertion Point

Specifies where the column insertion mark will be placed:

- Top Left
- Top Center
- Top Right
- Center Left
- Center
- Center Right
- Lower Left
- Lower Center
- Lower Right

Insert Mark

Specifies how the insert mark is going to be:

- Triangular
- Circular

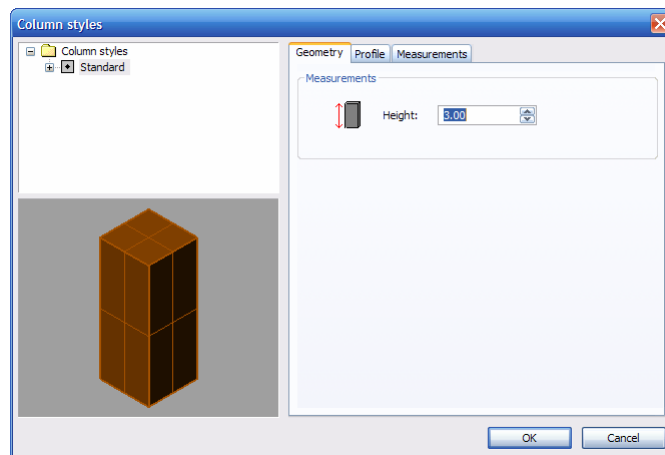
Offset

Specifies the X offset and the column in Y relative to the insert point.

Column Style

The column style defines the column shape, if it has coating, and its value.

The shape is defined by a profile, like the doors. The profile measurements will be specified in each column.



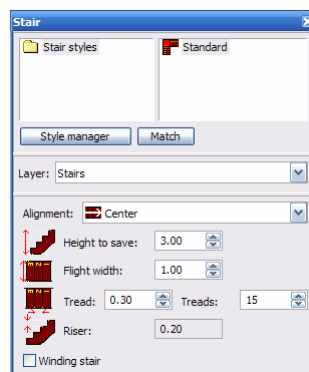
Stair

To insert stairs, please run:

- Commands: "**stair**"
-  **Menu → VisualARQ → Create → Stair**

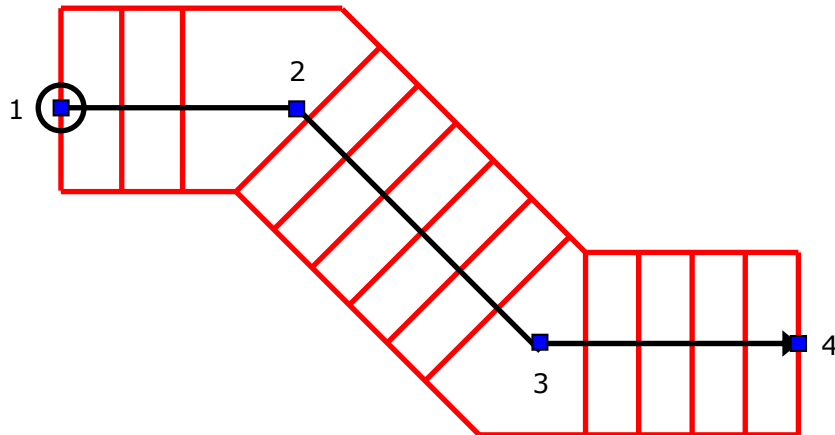
The command lets you insert a stair each time. To do so, the command asks for the first stair point and then the following points. At each point, the command creates a flight and joins flights through landings.

The stair command bar is as follows:



Control Points

The stair has as many control points as flights plus the insert point.



1. Insertion Point
2. Flight end point 1
3. Flight end point 2
4. Flight end point 3
5. ...

Parameters

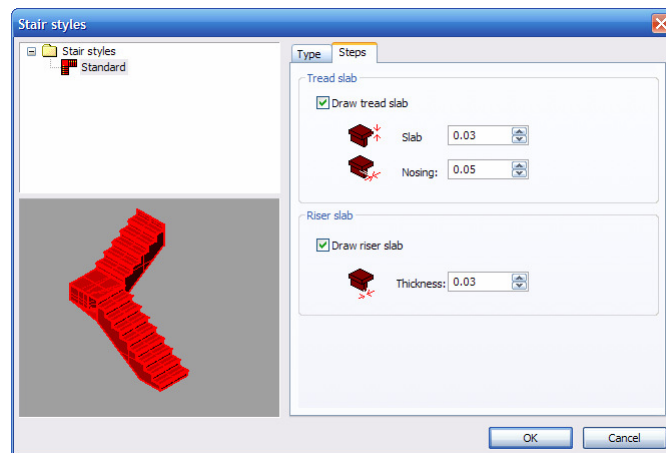
- **Alignment:** The stair can be aligned in the center, right and to the left
- **Flight width:** Specifies the width of all the stair flights. (The flight width can be specified in a later version)
- **Height:** Specifies the stair height to rise above.
- **Tread:** Specifies the tread distance (step width) for ALL the steps. (The tread width for specific steps can be specified in a later version)
- **Number of treads:** Specifies the total number of treads the stairs will have.
- **Riser:** Specifies the height of each step. The value is automatically calculated from the height and number of steps.
- **Spiral staircase:** specify inner radius as well as rotation direction.

Style Parameters

- **Type:** Defines the stair type.
 - **Normals:** Landing in the stair inflection zone.
 - **Compensated:** The tread value is applied to the center of all steps.

Steps

- **Tread slab:** Draws the tread slab, specifies if the stair has tread slab. Only displayed in 3D (elevations, sections, etc.), does not affect the plan representation. You can specify:
 - **Thickness:** Specifies tread thickness.
 - **Nosing:** Specifies the slab nosing.
- **Riser slab:** Draws riser slab. Specifies if the stair has riser slab. Only displayed in 3D (elevations, sections, etc.), does not affect the plan representation.
 - **Thickness:** Specifies riser thickness.



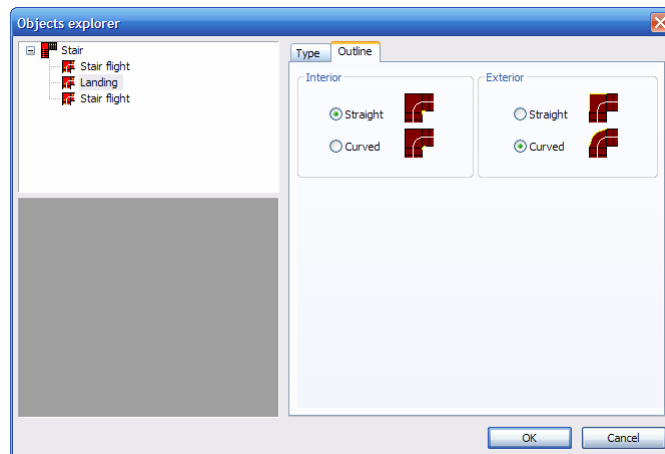
Flight Parameters

- **Type**
 - **Flat (landing):** The flight does not have treads.
 - **Ramp:** The flight does not have treads, but rises some height like a ramp (not implemented).
 - **Steps:** The flight is normal and has treads.

Landing Parameters

- **Type**
 - **Flat (landing):** The landing does not have treads.
 - **Ramp:** Not implemented.
 - **Steps:** The landing has treads. In this case, you can enter the number of steps.


- **Contour**
 - **Interior**
 - **Straight:** The interior contour will be angle shaped.
 - **Curved:** The interior contour will be arc shaped.
 - **Exterior**
 - **Straight:** The outer contour will be angle shaped.
 - **Curved:** The outer contour will be angle shaped.



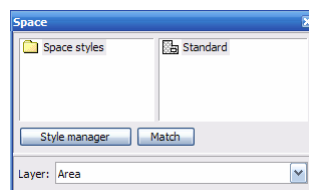
Space

The space represents the surfaced entity. The space shows data such as name, area or the perimeter of a room. In VisualARQ, the spaces automatically recognize the rooms, marking the space they comprise through shading.

To insert a space, please run:

- Commands: "**_VisualARQ_Space**"
-  **Menu → VisualARQ → Create → Space**

The following task bar appears in the space insert:

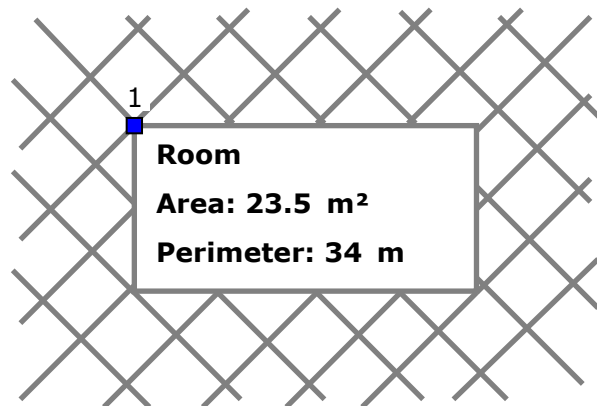


To calculate the area, please run:

- Commands: "**spaces**"
-  **Menu → VisualARQ → Documentation → Area Calculation**

This command allows to select a group of walls and columns and looks for their closed rooms. First lets you select the space style to be used in the spaces.

Control Points



1. Insertion Point

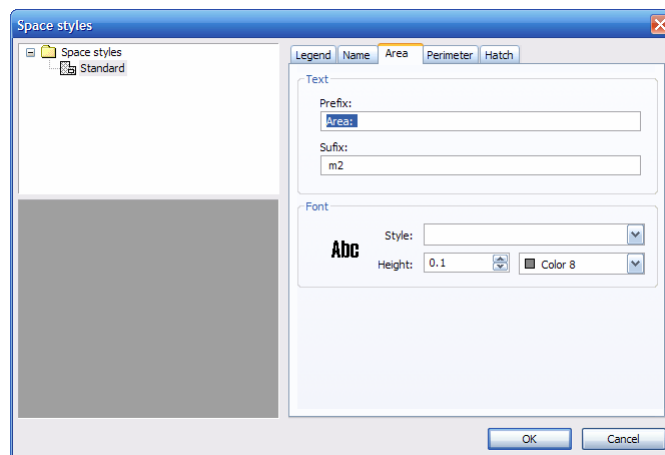
Parameters

- **Name:** Specifies space/room name.

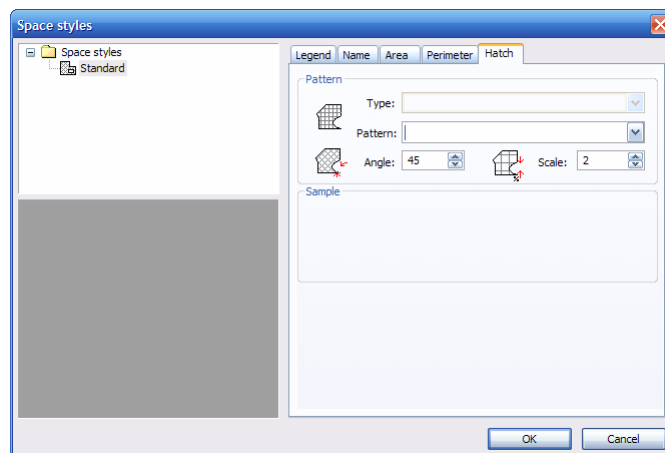
Style Parameters

- **Tooltip:** Lets you specify what you want to show in the space tooltip and what you don't want to show.
 - Show tooltip edge
 - Show name
 - Show area
 - Show perimeter
- **Name:** Lets you specify how the room name will be shown in the space.
 - **Prefix:** Specifies the text to be put before the name
 - **Suffix:** Specifies the text to be put after the name
 - **Source:** Specifies style, height and color.

- **Area and Perimeter:** As in name, it lets you specify how the room area will be shown.
 - **Prefix:** Text that precedes the area or perimeter
 - **Suffix:** Text that follows the area or perimeter
 - **Units:** Specifies the area or perimeter unit format
 - **Type:** Unit type (metric, ...) (not implemented)
 - **Accuracy:** Unit accuracy (number of decimal places)
 - **Source:** Source for area or perimeter.




- **Hatching:** Specifies the hatching that will mark the space occupied by the room
 - **Type:** Hatch type (predefined, user defined) (not implemented).
 - **Pattern:** Hatch pattern
 - **Angle:** Rotation angle applied to shading
 - **Scale:** Scale applied to hatching.

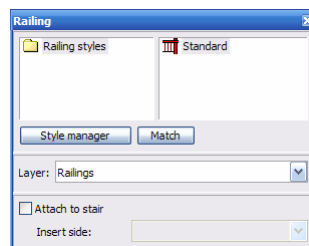


Railing

To insert railings execute:

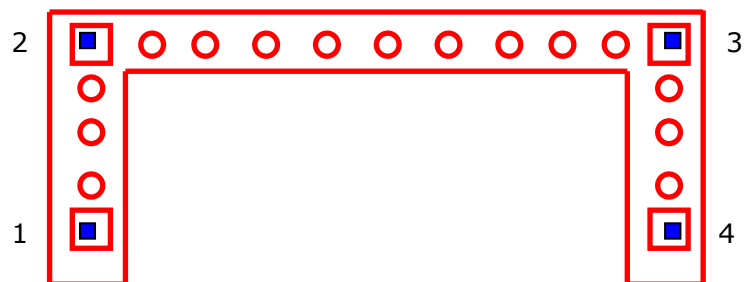
- Commands: "**_VisualARQ_Railing**"
-  **Menu** → **VisualARQ** → **Create** → **Railing**

You can specify the first railing point and then its successive points. The command bar is:



Control Points

The railing has as many control points as sections plus the insert point.



1. Insertion Point
2. End point of first section
3. End point of second section
4. End point of second section
5. ...

If the railing is joined to a stair, it will not have control points and will be controlled by the stair.

Roof

To create roofs, please run:

- Command: "**VisualARQ_RoofCreate**"
- **Menu → VisualARQ → Create → Roof**

You will be prompted to select a curve to use as the start outline for the roof. This curve must be flat and closed.



NOTE: Current version only supports polylines with straight line segments.

When you select the curve, you will be prompted for two points for the roof rotation axis, an angle for the roof slope, the roof thickness, and a point that will hold the roof bottom plane. This last point will be used to specify the roof height.


You can edit the roof outline adding or subtracting more outlines with "**VisualARQ_RoofAdd**" and "**VisualARQ_RoofSubtract**" commands.

You can also edit the slope angle with "**VisualARQ_RoofChangeSlopeAngle**" command.

Table

The listing or planning table is a table containing data on the elements. This table can show data on all VisualARQ objects. The area calculation or door and window tables are among the most used.

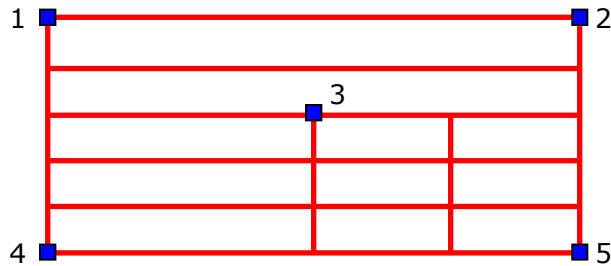
To create a planning table, please run:

- Commands: "**_VisualARQ_Table**"
-  **Menu → VisualARQ → Create → Table**

First, you will be asked for the planning table style and then you will be asked to select the objects to be added to the planning table.

Control Points

The planning table has 5 control points:

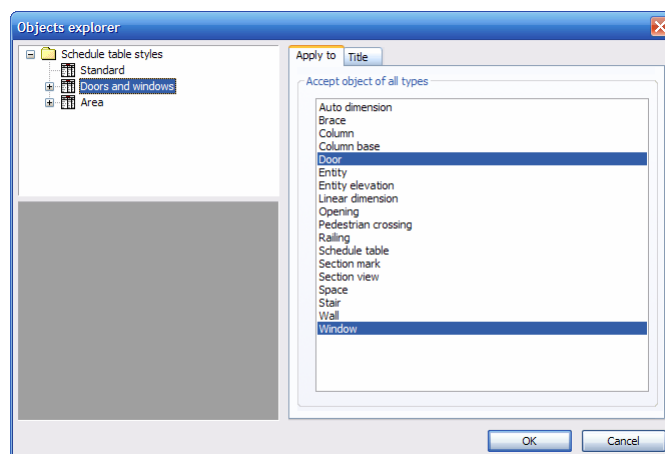


1. Left top insert point
2. Right top insert point
3. Center insert point
4. Left bottom insert point
5. Right bottom insert point

All control points move the table (they do not scale it).

Style Parameters

- **Apply to:** Specifies what type of objects the table will show. The command will automatically filter the selection so that it will only show these types of objects.
- **Title**
 - **Source:** Specifies source style, size and color to use in the table title.



Field Parameters


The table field indicates a table column. This shows a property of each object.

- **Property:** Specifies the property shown in this table field.
- **Title:**
 - **Source:** Specifies source, size and color style to use in the title field.
- **Data**
 - **Source:** Specifies source, size and color style to use in the field data.

Linear Dimension

The linear dimension lets you dimension over a line the objects that cut the layout marked by a polyline.

Dimensioning uses "Dimension" display mode. To do this, run the following command:

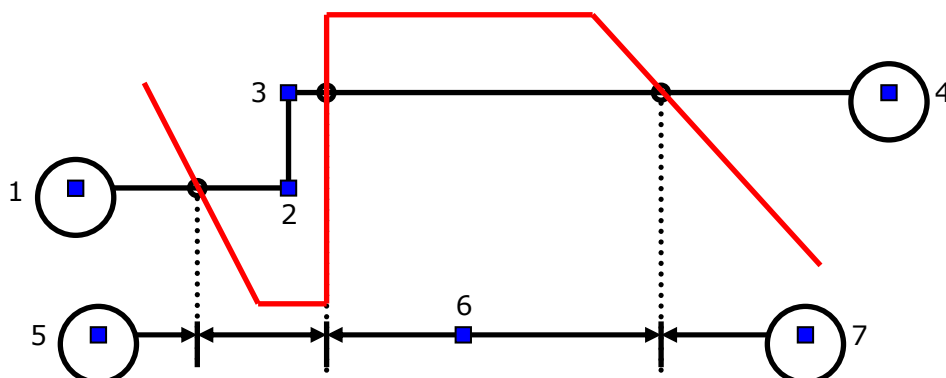
- Commands: "**_VisualARQ_LinearDim**"
-  **Menu → VisualARQ → Documentation → Linear Dimension**

First specify the cut polyline. To do so, mark the different points that define the cut polyline.

Second, specify the projection line or dimension line and mark its position and direction.

Control Points

The dimension line has 3 control points for the dimension line plus the cutting line's control points:




1. Start point of the cutting line
2. Midpoint of cutting line
3. Midpoint of cutting line
4. End point of cutting line
5. Start point of dimension line
6. Center point of dimension line
7. Center point of dimension line

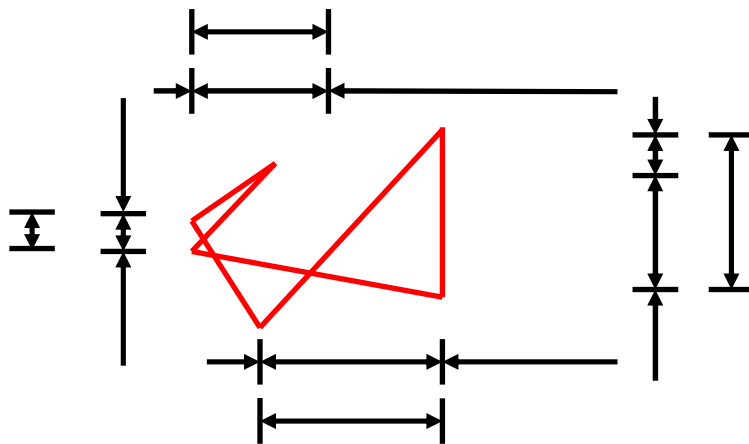
Automatic Dimension

The automatic dimension dimensions, as its name indicates, all selected objects data. It creates 4 dimension lines: top, bottom, right and left.

To automatically dimension, please run:

- Commands: "**_VisualARQ_AutoDim**"
-  **Menu → VisualARQ → Documentation → Automatic Dimension**


When you run the command, select the objects you want to dimension automatically.



Section / Elevation

Entity elevation or section represents objects in 3D and projects them on a plan and hides the hidden faces.

To generate an elevation, please run:

- Commands: "**_VisualARQ_Section**"
-  **Menu → VisualARQ → Create → Section/Elevation**

First, you can specify section marks, that is, the section cutting line. After specifying the observer's position, select the objects to section and then specify the place where the image will be projected.