

# ArchiSuite



## NEW FEATURES AND IMPROVEMENTS

© 2012 Cigraph Factory S.r.l.  
ArchiSuite - new features and improvements  
Versione 1.0 for Microsoft Windows and Mac OSX

### Copyright

The contents of this manual and the software described therein are the sole property of Cigraph Factory S.r.l. with all rights reserved.

As per copyright laws, this manual and the software programs cannot be copied either fully or in part without the written consent of Cigraph Factory S.r.l., except during normal use of the software to create a back-up copy. This exception does not allow the buyer to make copies for others, even if the software is sold, traded or given away.

Text: Arch. Fabrizio Diodati

Cover Illustration: Marco Marella

### Guarantee limitations

Even if Cigraph Factory S.r.l. has tested the software described in this manual and reviewed its contents, Cigraph Factory S.r.l. can give neither express nor implied guarantees or statements with reference to the software, its quality, its performance or suitability for any particular purpose.

Therefore, this software is sold "as is" and the buyer assumes all risks with reference to its quality and performance.

In no case shall Cigraph Factory S.r.l. be held responsible for direct, indirect, special, incidental or consequential damages deriving from any defect in the software or from errors in the manual, even if Cigraph Factory S.r.l. is notified of the possibility of said damages. In particular, Cigraph Factory S.r.l. shall not be held liable for possible loss of data or of the program on computers, including the cost of recovery or the cost of data reproduction or of the program itself.

### Licences and Trademarks

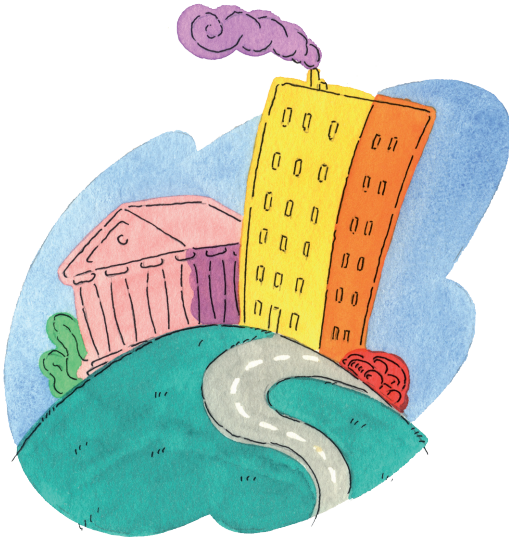
ArchiQuant, ArchiTerra end ArchiSuite are registered trademarks of Cigraph S.r.l. ArchiCAD and GDL are registered trademarks of Graphisoft. Other products and trade names may be trademarks or registered trademarks of other companies and are used purely for demonstrative purposes in favour of the trademark holder, without intent of breach.

Cigraph S.r.l.  
Via Orsato, 38 - 30175 VE/Marghera  
Tel. +039 041 93 23 88  
Fax+039 041 92 00 31  
Internet: <http://www.cigraph.com>  
e-mail: [archisuite@cigraph.com](mailto:archisuite@cigraph.com)

## Contents

<b>ArchiTerra new features and improvements</b>	<b>1</b>
Importing text files	1
Importing shapefiles	3
Import terrain surveys from shapefiles	4
Create new GIS object	7
Use existing GIS object	7
Associate shapefile fields with GIS object parameters	7
Terrain slope analysis	10
New scarp management for the Road tool	11
<b>ArchiQuant new features and improvements</b>	<b>12</b>
New component database management	12
Position of the databases	12
Suppression of derived headings	12
Modified component database management interface	13
The new ArchiQuant settings panel	14

# ArchiTerra new features and improvements



*In this version of ArchiTerra for ArchiSuite 16, a number of improvements have been made to the data import phase, including addition of the shapefile format. A new procedure for analysing the slope of a terrain has also been added.*

## Importing text files

A number of new functions and improvements have been introduced to import survey data in text file format.



When the file to be imported is selected, ArchiTerra displays the following dialog box:

**Text File import**

**Text file preview**

-21.0»	22.0»	10.0»	1»	.....1»
-14.7»	27.3»	10.0»	2»	.....1»
-8.4»	30.4»	10.0»	3»	.....1»
-3.8»	28.3»	10.0»	4»	.....1»

**Imported Data Preview**

-21	22	10.0	1	1
-14.7	27.3	10.0	2	1
-8.4	30.4	10.0	3	1
-3.8	28.3	10.0	4	1
5.8	29	10.0	5	1

Conversion Unit: **meter**

**Options:**

**Format:**

- ☐ x y z
- ☐ x y z Code
- ☐ Code x y z
- ☐ x y Code Comment
- ☐ x y Comment Code
- ☐ Code x y z Comment
- ☒ x y z Code Comment
- ☐ x - y reversed

**Delimiter:**

- ☒ tab
- ☐ semicolon
- ☐ 1 or more spaces
- ☐ 3 or more spaces
- ☐ other:

☐ Skip the first row

**Decimal separator:**

- ☒ dot
- ☐ comma

**Filter Distance:**

**Imported Points:**

☐ Overwrite original code

Code:

☐ ArchiTerra

Two previews of the data to be imported are displayed at the top.

The top preview shows the contents of the first four rows of the file to be imported using metacharacters to represent the field delimiters.

The ">>" symbol represents the tab character and the "•" symbol represents a space.

This preview helps you understand the contents of the file and choose the best import settings accordingly.

The second preview area immediately below shows how ArchiTerra will import the data, allowing you to verify the import settings configured above.

These import settings include new file format characteristics. From this version, ArchiTerra can now import not just the three coordinates of the survey point and its ID code, but also any associated comment/description.

After configuring the import procedure and confirming with the **OK** button, ArchiTerra displays a dialog box with the results of the import:



The "Import results" dialog box displays the following information:

- Imported Points:**
  - read: 115
  - imported: 115
  - skipped: 0
  - Import again... button
- Terrain position:**
  - Use previous offset button
  - x max: 120,00
  - y max: 130,00
  - Map preview with red 'X' markers indicating the import area.
  - x min: -30,00
  - y min: 20,00
- Limited import:**
  - ☐ Import area between:
  - xmin: -30,00 ymin: 20,00
  - xmax: 120,00 ymax: 130,00
- Cancel and OK buttons at the bottom right.

In the centre section where the position of the imported points and possible offset to be applied are defined, the offset definition fields have been changed.

In the two fields for defining the xmin and ymin coordinates, instead of having to enter the offset value, you can now enter the new coordinates for the bottom left point of the survey directly.

This simplifies offset definition and you no longer need to perform any calculation.

At the top of the section, the **"Use previous offset"** button enables you to re-use the offset applied during the previous import.

When importing multiple files, this greatly simplifies application of the same offset to ensure that the various surveys imported into the ArchiCAD worksheet correspond.

The offset used can also be applied subsequently to the ArchiTerra point dimension viewing tool in order to view the survey coordinates correctly.

### ***Importing shapefiles***

From this version of ArchiTerra, you can also import the information describing the terrain from a shapefile.

These files usually include two types of information present in two different files:

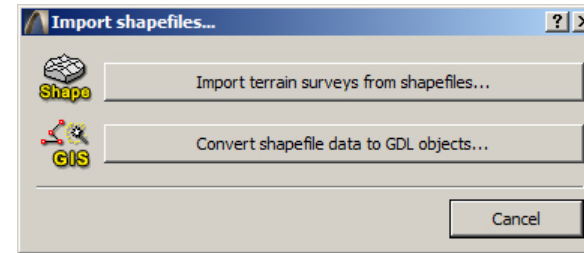
- a file containing all the graphical information (.shp)
- a file containing the alphanumeric data associated with the graphic primitives (.dbf)

The shapefile import function is situated in the same position as the DXF file import function.



Press and click the icon to toggle between importing DXF files and importing shapefiles.

After choosing the shapefile format, click on the tool icon and ArchiTerra immediately displays a dialog box where you can define the type of import to perform:



This procedure can be used to import either data describing the terrain morphology (the result of the import will be an ArchiCAD mesh representing the terrain) or data describing the individual elements to be represented on the terrain, such as buildings (in this case, the result of the import will be GDL objects automatically positioned in the ArchiCAD project).

## Import terrain surveys from shapefiles

Choosing this first option opens a standard “Open” dialog where you can select the .shp file to be imported.

When the file is selected, ArchiTerra will display the following dialog box:

**Import results**

Import results

Identified elements:	566
Importable elements:	566
Elements to be corrected:	0

**Data position:**

Use previous offset

X min: 1730465,69  
Y min: 5142790,02  
X max: 1733773,13  
Y max: 5145690,07

**Limited import:**

☐ Import area between:

xmin	1730465,69	xmax	1733773,13
ymin	5142790,02	ymax	5145690,07

**Terrain conversion settings**

Polyline node minimum distance: 25,00

☐ with contours ☐ vertical thinning

☐ Dimension from DBF file

Cancel OK

At the top, the **Import result** section displays the number of elements in the file and the number of elements ArchiTerra is able to import.

In the **Data position** area immediately below, you can define an offset to be applied to the data to make sure the position of the result corresponds to the ArchiCAD origin (shapefiles are always georeferenced and may therefore be very distant from the ArchiCAD origin).

When importing shapefiles, if you have defined an offset to position the data, the **Use previous offset** button is of vital importance.

Shapefiles do not in fact use a layer logic to divide the information into themed groups contained in a single file, but use separate individual files. The terrain is therefore represented by dozens of files, each including all the elements of a certain group/type/category.

You could say that each ArchiCAD themed layer corresponds to a single .shp file.

To import this data, a number of files must often be imported in sequence and the possibility of re-using the offset values defined previously will therefore help greatly.

Under this, just as when importing a DXF file, you can define whether to import just one area of the data by defining the coordinates of the two opposite corners of the rectangle to be imported.

In the final section, **Terrain conversion settings**, you can:

- define a filter for the polyline nodes representing the contour lines
- decide whether or not to insert constraints linking consecutive pairs of points to the contour lines
- define an optional vertical thinning (in other words, the filter is applied not just to the distances on the X-Y plane, but also to the distances along the Z axis)
- read the dimension of the points not from the graphic primitive read from the .shp file, but from the data present (if existing) in the associated .dbf file (if this option is active, ArchiTerra displays a pop-up menu where you can choose, from the congruent alternatives, the database field which defines the dimension).

When the result of the operation is confirmed with the **OK** button, ArchiTer-  
ra displays the imported data in the ArchiCAD project, just as with all other  
import modes.

## Convert shapefile data into GDL objects

This second option, instead of importing the data describing the terrain, im-  
ports all the other data of the other primitives existing on the terrain (roads,  
buildings, individual elements, zones, etc.).



When you click on this button, the first part of the pro-  
cedure is similar to that described above. When the  
.shp file to be imported is selected, an import result  
window appears:

The 'Import results' dialog box is shown with the following sections:

- Import results:**
  - Identified elements: 804
  - Importable elements: 804
  - Elements to be corrected: 1
- Data position:**
  - A 'Use previous offset' button.
  - A map preview with blue 'X' marks at the corners of the import area.
  - X min: 1730531,34
  - Y min: 5142835,92
  - X max: 1733714,60
  - Y max: 5145681,63
- Limited import:**
  - ☐ Import area between:
  - xmin: 1730531,34 xmax: 1733714,60
  - ymin: 5142835,92 ymax: 5145681,63
- GIS element management:**
  - GIS object to be used: none of these (dropdown menu)
  - Polyline node minimum distance: 25,00
  - ☐ Dimension from DBF file

At the bottom are 'Cancel' and 'OK' buttons.



**Note:** *If you have already imported shapefiles (perhaps the file describing the terrain) and you have shifted the data using a custom offset, remember to click on the **Use previous offset** button to configure the same offset values and therefore make sure the position of the data corresponds.*

The differences compared to importing the data describing the terrain can be found at the bottom of the window in the **GIS element management** section:

In the first pop-up menu, **GIS object to be used**, you can choose a previously created GIS object from the loaded library to represent the primitives being imported and receive the data. Alternatively, you can create a new object.

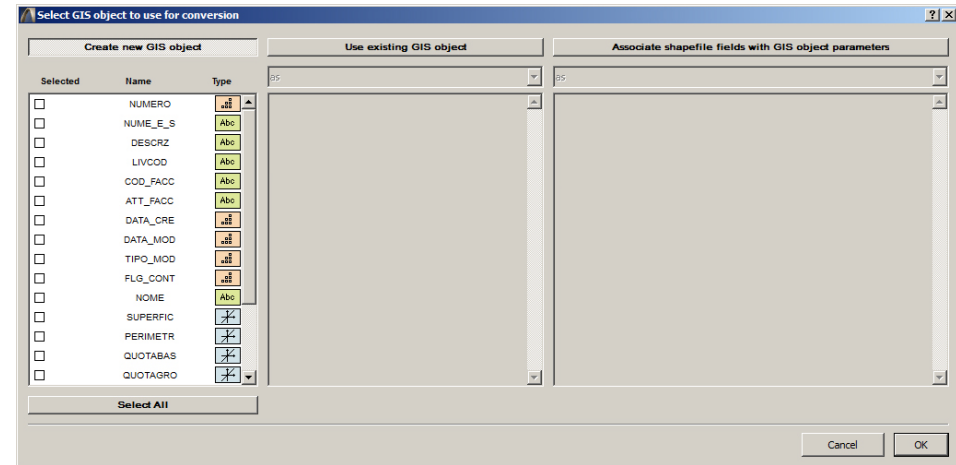
The first time you import this type of file, no objects of this type will obviously be available, so you will have to create a new one.

Subsequently, when you want to import the same type of element, you can use the objects created previously.

Immediately below, the **Polyline node minimum distance** filter enables you to simplify the data to be imported.

As described above, **Dimension from DBF file** allows you to choose whether to use the dimensions of the graphic primitive in the .shp file or to read the dimensions from the associated .dbf file (if present). If this option is active, ArchiTerra displays a pop-up menu where you can choose, from the congruent alternatives, the database field which defines the dimension.

When the import settings are confirmed with the OK button, before proceeding to read the file, ArchiTerra displays the following dialog box:



This dialog configures the object representing the shapefile primitives to be imported.

The three buttons at the top allow you to choose which object to use and how to use it:

- **Create new GIS object**

- The first time you perform this type of import, or when your active libraries do not include GIS objects (in other words, objects created automatically by ArchiTerra to represent this type of primitive) this will be the only option available.

- **Use existing GIS object**

- If your library already includes objects of this type, you can select one of them to use to represent the imported data

- **Associate shapefile fields with GIS object parameters**

- This last option allows you to enter the data to be read in specific fields of the objects already in your active libraries, even though the fields in question may have different names



## Create new GIS object

This first option allows you to create a new GIS object, in other words, an object which graphically represents the primitive to be imported from the shapefile and retains the associated data.

Under the button there is a list of all the fields present in the associated .dbf file (if present), displaying the name and type of data.

Using the check-boxes on the left of each field you can choose what data you want to import.

Use the **Select all** button under the list to select all the fields listed.

**Note:** *Remember to activate the fields to be imported. If you activate no fields, ArchiTerra will represent the information read from the shapefile graphically only, ignoring any alphanumeric information associated with the original primitive.*

## Use existing GIS object

You can use this option if your active libraries already contain this type of GIS object.

Click on the corresponding button at the top to activate this mode, then select the object to use from the list displayed in the pop-up menu below.

After making your choice, the fields present in the associated .dbf file (if present) will be listed below, displaying the name and type of data.

The colour of the field indicates the congruence of your choice. The object you select may not include all the fields present in the primitive to be imported, so:

- the fields listed in **blue** are present in the selected GIS object, but NOT in the element to be imported from the shapefile (so they will be empty after the import)
- the fields listed in **black** are present in both the selected GIS object and the elements to be imported from the shapefile

Obviously all the information fields associated with the elements in the shapefile to be imported and not corresponding to fields in the object selected to represent them will not be imported.

## Associate shapefile fields with GIS object parameters

You can use this option if your active libraries already contain this type of GIS object.

Click on the corresponding button at the top to activate this mode, then select the object to use from the list displayed in the pop-up menu below.

In this case, the list of fields is more complex as it includes, from left to right:

the name of the field present in the selected object

the type of field

the field, read from the shapefile to be imported, whose contents must be transferred to the relative field in the object

### Important notes:

- *The pop-up menus on the right list only the congruent fields in the shapefile, in other words, those of the same type as the object field*
- *If two fields (the field in the object and the field in the shapefile to be imported) have the same name, the association is automatic*

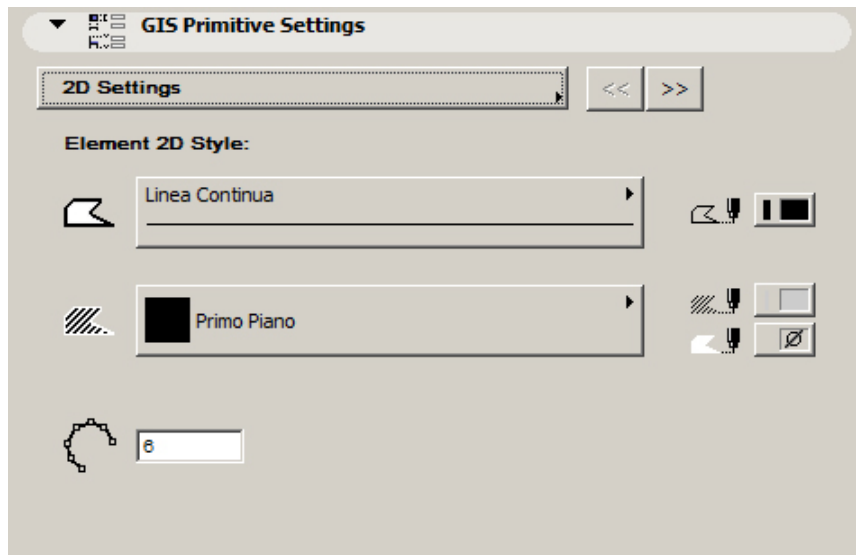
With all three procedures for defining the GIS object to be imported, click on the **OK** button to continue with the import.

The only difference between the three procedures is that, if you have decided to create a new GIS object, a dialog box will appear where you can define the name of the object (which will be saved in the ArchiTerra library).

Before positioning the primitives read in the project, ArchiTerra displays the ArchiCAD **Object settings** dialog box where you can configure the elements to be inserted.

In the user interface section, you can configure the three aspects of the object:

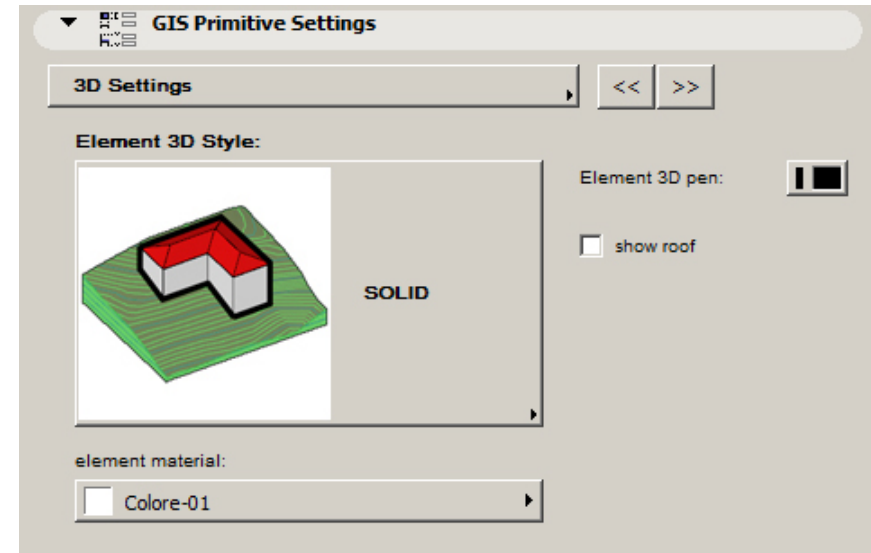
## 2D settings



Here you can configure the types of line, pen and fill used to represent the GIS primitive in the ArchiCAD plan.

The last field defines the resolution of the curved elements (if present).

## 3D settings



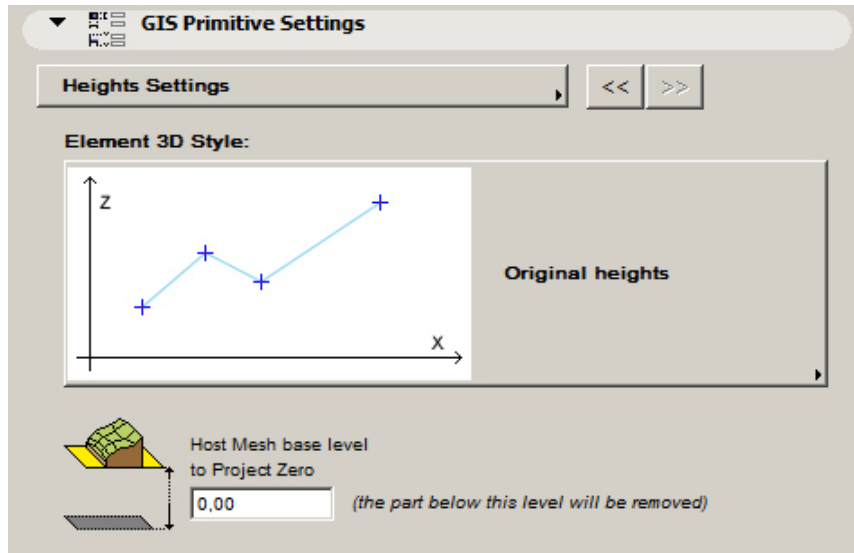
A pop-up menu allows you to choose if the GIS primitive should be displayed as:

- Linear element
- Polygonal element
- Solid element

You can also define the pen for the 3D outlines and the surface material used to represent the element.

If you choose the Solid element option, you can also decide to display a roof (representative only), defining the slope and material.

## Height settings



Particularly when importing data relating to buildings, possible differences in height between the nodes of the imported polylines could cause problems during representation.

In this case, you can choose from one of the options available:

- **Original heights:** the values read from the shapefile will be retained and used to represent the heights of the vertices of the primitive
- **Uniform to the highest:** all nodes assume the height of the highest value
- **Uniform to the lowest:** all nodes assume the height of the lowest value
- **Uniform to the average height:** all nodes assume the mean of all the heights

When the settings are confirmed with the **OK** button, ArchiTerra inserts the GIS primitives read from the shapefile using the GDL objects.

These GDL objects will have the graphic characteristics you assigned them and the GDL parameters will have the values read from the .dbf file associated with the imported .shp file.

**Note:** *These GDL objects are in every way similar to those with which you are familiar in ArchiCAD and can be edited or manipulated in the same way as any other ArchiCAD library part.*

## Terrain slope analysis

From this version, you can use ArchiTerra to analyse the slopes of a terrain, in other words, the information on the slope of the triangles representing the surface of the mesh/terrain.

The slope analysis procedure is located in the same position as the depth display tool.



Pressing and clicking the icon toggles between depth display and slope analysis.


Select the mesh/terrain to be analysed, then click on the **Slope analysis** tool icon and ArchiTerra opens a dialog box where you can configure the result of the procedure:

**Slope analysis**

**Slope intervals:**

	% <=			
	5	80		
5	< % <=	10	104	
10	< % <=	15	100	
15	< % <=	20	117	
20	< % <=	25	103	
25	< % <=	30	3	
	% >	30	20	

**3D view:**

3D ☐  0,01

**Legend settings:**

First header:

Second header:


Third header:

Abc

M  mm  ☐

Outline pen:  ☐

☐ Also show zero values

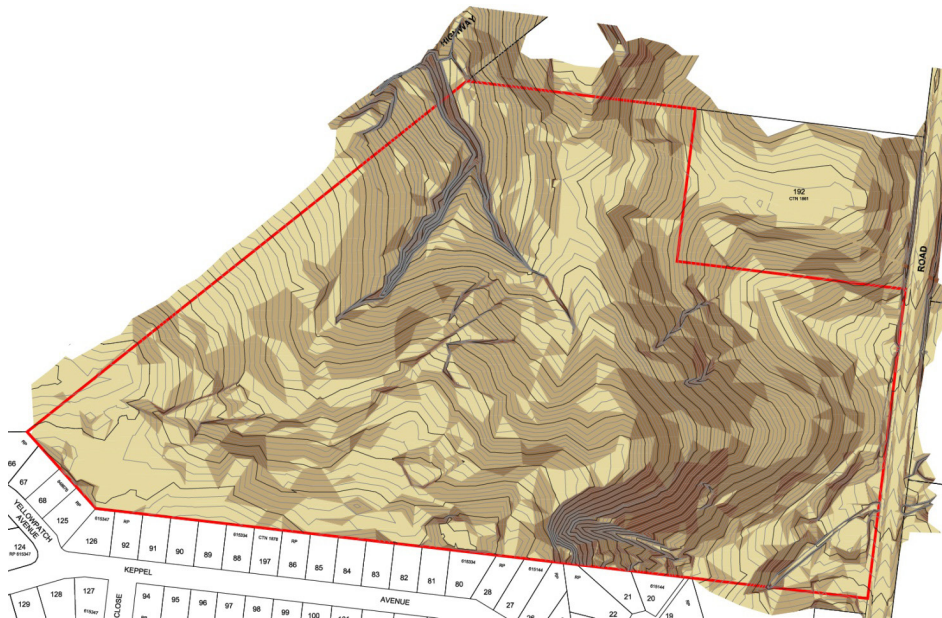
 ArchiTerra

In the first section, **Slope interval settings**, you can configure the slope intervals and colours to be allocated. If the slope of a triangle falls within the interval defined in this section, then the triangle will be represented by the colour configured here.

In the centre section, **3D view**, you can enable or disable display of the image in the 3D window and define the distance from the original mesh/terrain.

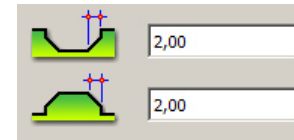
Finally, in the last section, **Legend settings**, you can customise the three header strings, the font and the pen used to represent the legend on the plan.

When you confirm with the **OK** button, ArchiTerra will automatically insert the **"AT4\_SLOPE\_RANGE"** object displaying the slope analysis in both plan and 3D views:



## New scarp management for the Road tool

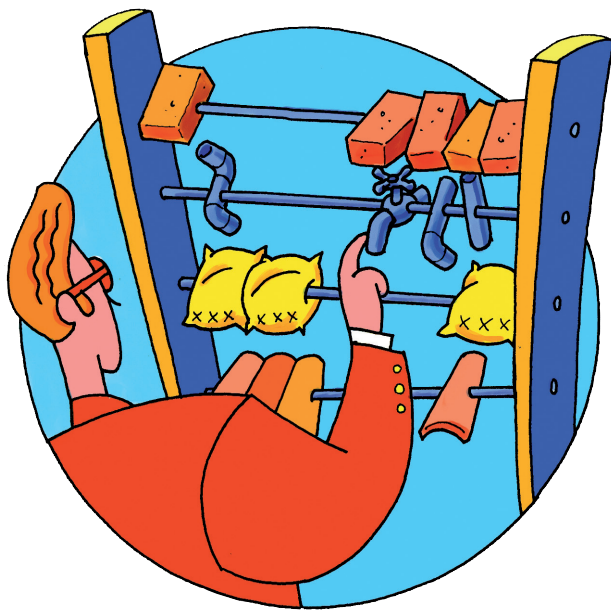
From this version of ArchiTerra, the value managing scarp size has a new meaning.



The two values now define the width of the excavated and filled scarps.

This makes the elements which modify the terrain to adapt it to the new roads less complex than in the past and Solid Operations performed on the mesh/terrain will be simpler and faster.

## ArchiQuant new features and improvements



*This new version of ArchiSuite also includes a new version of ArchiQuant with a number of new features and numerous improvements*

### ***New component database management***

The most demanding work was carried out on this theme (sometimes involving a complete re-write of the procedures).

Many users needed to import very heavy databases of descriptions (containing tens of thousands of entries) and this greatly slowed down exploration and editing of the database.

ArchiQuant can now manage even exaggeratedly large databases with excellent performance (sometimes three times faster than the previous versions).

### ***Position of the databases***

The components databases (and other files required for their use) are now memorised in a specific position in your computer, namely, in the shared files folder which includes the **ArchiQuant\_DATA** folder grouping them all together.

These databases will therefore now be available not just to this version, but also to subsequent versions of ArchiQuant, greatly simplifying the transition from one version to a more recent one.

### ***Suppression of derived headings***

Heading management has also been improved and modified.

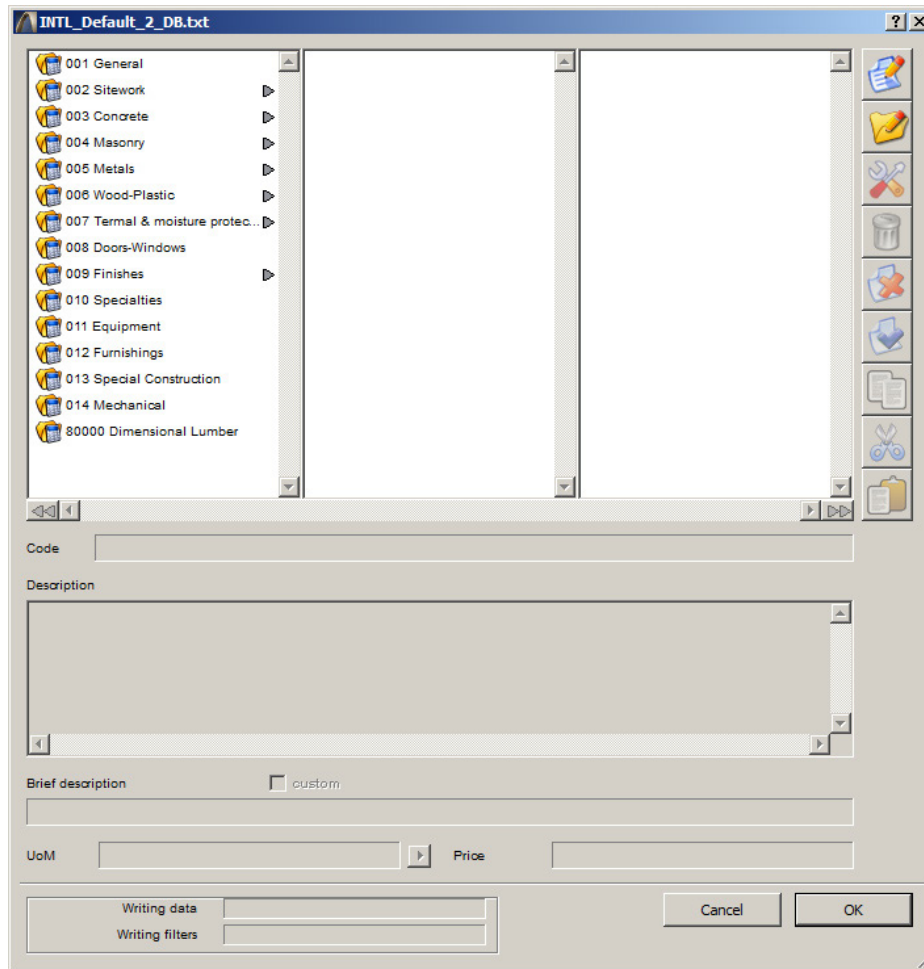
ArchiQuant now manages component codes differently and it is therefore no longer necessary to create derived headings, in other words "virtual" headings generated automatically according to the component code.

From this version, only "real" headings are generated and managed, in other words, those imported from the original database.



## Modified component database management interface

To facilitate and simplify consultation and editing of the database, the exploration interface has been modified.



Firstly, all windows can now be resized as required, so the user can expand them to view more data.

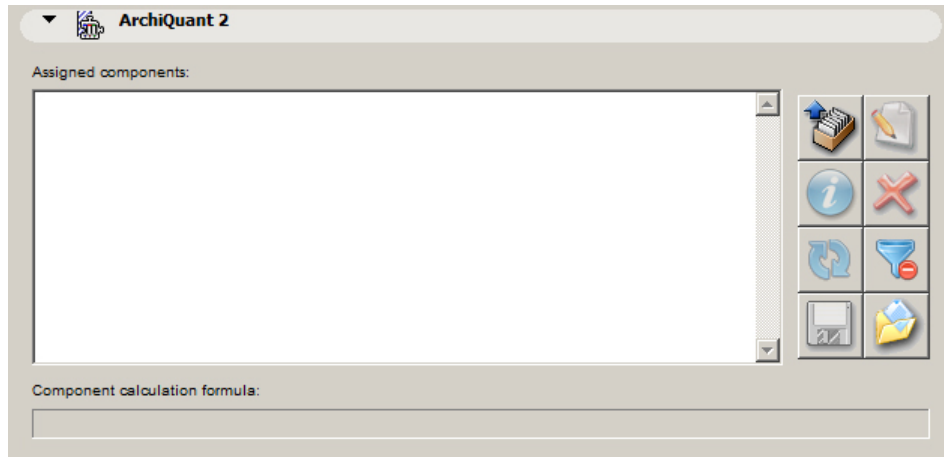
Navigation is now much simpler:

- The root of the database with all the folders/headings it contains is on the left
- Folders which are not empty (in other words, which contain something) are shown with a small arrow
- When you click on the name of the folder (you do not need to double click), the contents of the folder are listed in the column on the right and so on; as you click on a folder, its contents are displayed in the adjacent column on the right. When more than three columns are displayed (in the case of deeply nested databases), a horizontal scrollbar appears enabling you to return rapidly to the folder viewed previously.
- Display of the components has been greatly improved as the displayed description is now much longer.
- You no longer need to pass from component editing mode to database editing mode to create the two different entries. Go to the folder where you want to create the element and use one of the two buttons at the top right to create either a new component or a new heading in that position.
- To “move” an item from one folder to another, you can now use the three new Copy/Cut/Paste buttons:
  - Select the item to be moved
  - Copy or cut it using the corresponding button
  - Go to the destination folder/heading and use the Paste button. The item will be generated in the position indicated and the code will be composed according to the destination folder. The original item remains unchanged (if you used the Copy option) or will be eliminated (if you used the Cut button).



## The new ArchiQuant settings panel

The panel for associating components to ArchiCAD elements has also been modified:



This panel can also be resized (or rather, it follows resizing of the ArchiCAD settings windows), making the components easier to read.

The list of assigned components now includes a range of information:

On the far left, a small tick indicates whether the component has already been assigned to a formula or not

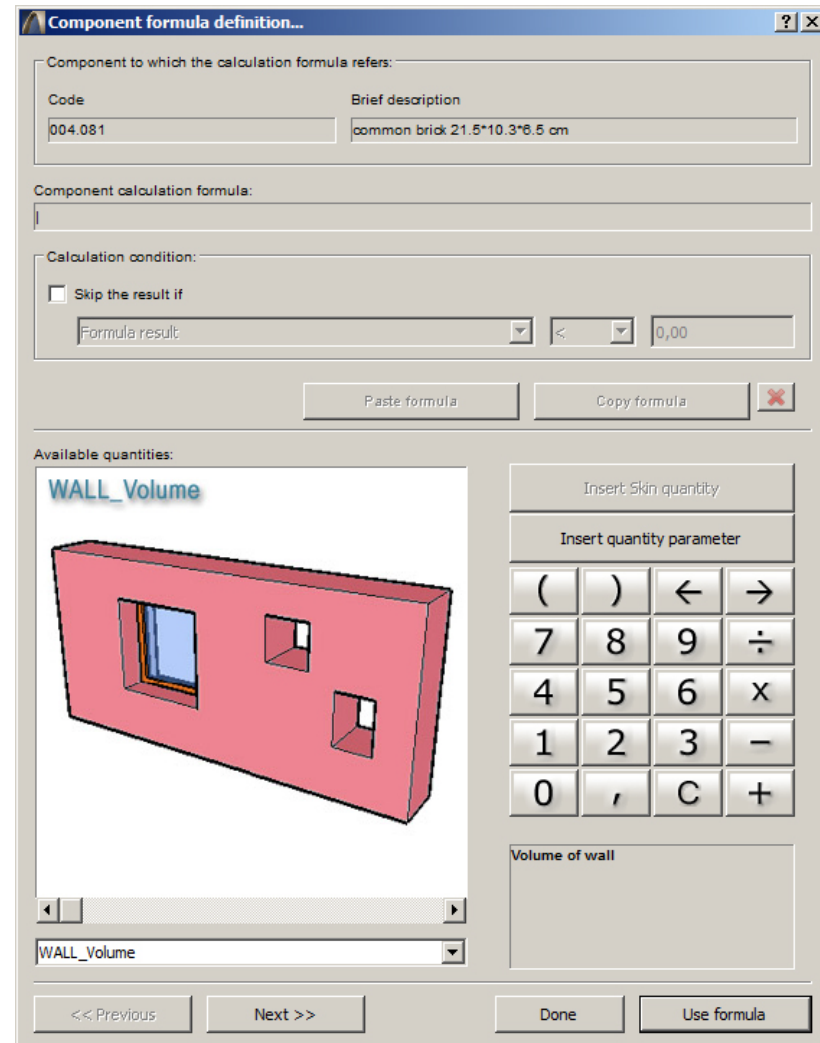
Much more space is now available to view the description (it follows resizing of the window)

You can now select multiple components in order to assign common formulas more simply

Under the components list, the **Component calculation formula** field lets you see at a glance the formula assigned to the component selected in the list

The rule following assigning of the formulas is simple and intuitive:

- If you click on the Formula button after choosing just one component, the following dialog box will be displayed:



Unlike previous versions, at the top there is a summary of the **Code** and **Brief description** of the component whose formula is being defined.

This information allows you to identify the component during editing as the two new buttons at the bottom, **Previous** and **Next**, let you scroll through the existing components in order to define their formulas without having to exit and re-enter the dialog (as in previous versions).

If you click on the Formula button after choosing a number of components, the following dialog box appears:

**Component formula definition...**

Component to which the calculation formula refers:

Code: \_\_\_\_\_ Brief description: assigning the same formula to 3 different components

Component calculation formula:

\_\_\_\_\_

Calculation condition:

☐ Skip the result if

Formula result < 0,00

Paste formula Copy formula

Available quantities:

**WALL\_Volume**

Insert Skin quantity

Insert quantity parameter

( ) < >

7 8 9 ÷

4 5 6 ×

1 2 3 -

0 , C +

Volume of wall

WALL\_Volume

<< Previous Next >> Done Use formula

As you can see, in this case the code does not appear (as a number of components have been selected) and the multiple selection is indicated by the string used, in this case, as the brief description.

At the bottom, the two buttons for navigating between the various components are disabled.



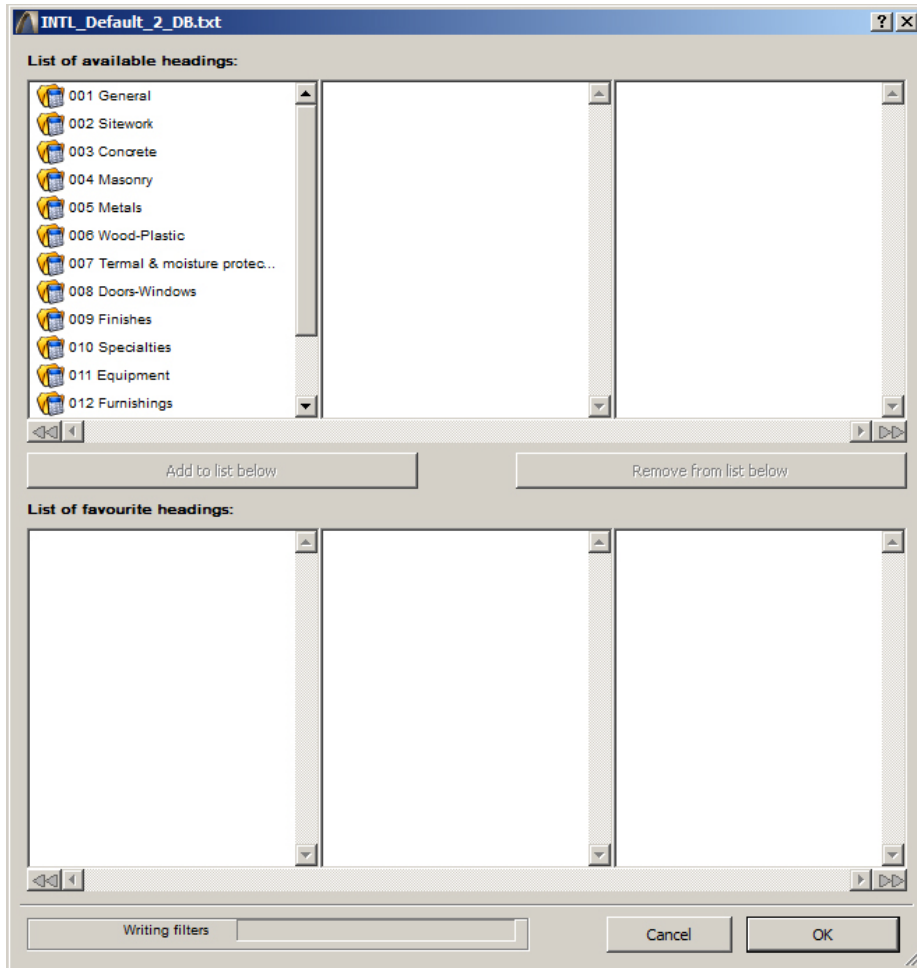
Going back to the ArchiQuant Settings panel, there is now a new button to define and manage the filters.

This procedure is based on an extremely simple concept. When you access the components database to choose the component to be assigned to your ArchiCAD primitive, all the entries present are listed, including those which are probably not relevant to the ArchiCAD element type being configured.

For example, if you are assigning components to a window, you are unlikely to refer to the heading which includes bricks or technical installations.

The filters help simplify this phase.

When you click on the filter tool, the following dialog box is displayed:



At the top there is a list of all the headings present in the database, under this is a list of Favourite headings (in other words, the headings relating to the tool currently selected).

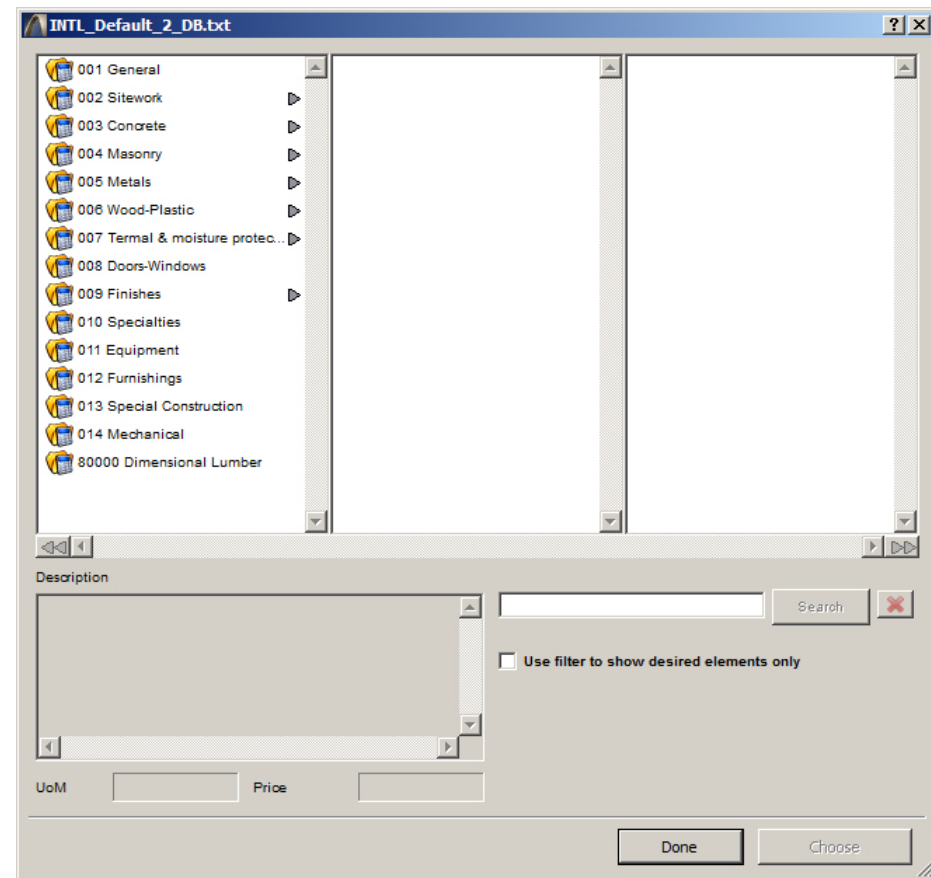
Select the headings you want to define as favourites from the top list, then click on the **Add** button.

These Headings will immediately appear in the list below.

**Note:** The filter information will be saved in the ArchiQuant\_DATA folder and will be linked to the components database from which it originates. These filters will be available whenever you use that database, including with different projects or subsequent versions of ArchiQuant.

Now let's look at how to use the filters thus defined.

When you click on the assign component icon, the following dialog box appears:



As you can see, the contents of the entire database is normally listed.

However, by using the **Use filter to display only the elements required** checkbox, you can enable the filters defined previously to list only the Favourite headings for the ArchiCAD tool concerned.

The search field further simplifies the process:

- Enter the required string in the **search** field and click on the Find button. Only the entries corresponding to your search criterion will be displayed.
- Use the button with the red cross to delete the search criterion and view all the entries in the database again (or the filtered entries, if you have enabled the filter).