

# The ArCon Project



Online Warehouse Ltd

Copyright Les Player 2002

The information supplied herein is supplied without warranty. All information is used at no risk to the author or publisher.

This copy is available for the use of customers of Online Warehouse Ltd only.

Version No.	Date
1.0	1.4.02
1.01	07.01.03
1.12	13.01.03

Please check our web site for latest version of this document, as it is being upgraded all the time. ([www.3darchitect.co.uk](http://www.3darchitect.co.uk)).

If you can not see the images displayed in this tutorial then that's possibly due to you using an older version of Adobe Acrobat. You can install the latest version of Adobe Acrobat from the ArCon CD, or download it from [www.adobe.com](http://www.adobe.com).

## Contents

<b>1</b>	<b>INTRODUCTION</b>	<b>7</b>
<b>2</b>	<b>ARCON OVERVIEW</b>	<b>9</b>
2.1	HELP!	9
2.2	3D MODE OVERVIEW	9
2.2.1	<i>My Screen looks different!</i>	10
2.3	THE CATALOGUE OVERVIEW	10
2.4	2D MODE OVERVIEW	11
<b>3</b>	<b>PLAN YOUR PROJECT</b>	<b>12</b>
3.1	OPTIONAL CHANGES TO ARCON	12
3.1.1	<i>Backups</i>	12
<b>4</b>	<b>STARTING ARCON</b>	<b>13</b>
4.1	ESTABLISH THE SCALE	13
4.2	PAPER SIZE	13
4.3	GRID SIZE	14
4.4	COMPASS	15
4.5	ESTABLISH BOUNDARIES	15
<b>5</b>	<b>PLACE GUIDELINES</b>	<b>17</b>
<b>6</b>	<b>GROUND FLOOR</b>	<b>19</b>
6.1	PLACE GROUND FLOOR WALLS	19
6.1.1	<i>How to place a wall</i>	19
6.1.2	<i>Wall alignment using Ctrl W</i>	20
6.1.3	<i>Applying textures to exterior walls</i>	22
6.1.4	<i>Changing the wall thickness</i>	22
6.1.5	<i>Moving / Editing Walls</i>	23
6.1.6	<i>Stretching Walls (ArCon 6.5 only)</i>	23
6.1.7	<i>Establish the Floor Height</i>	25
6.2	ADD INTERNAL WALLS	26
6.2.1	<i>Placing internal walls using guidelines</i>	26
6.2.2	<i>Rooms</i>	31
6.3	ADD DOORS	34
6.3.1	<i>Edit door size</i>	34
6.4	ADD WINDOWS	35
6.4.1	<i>Window icons</i>	35

6.5	EDIT WINDOW SIZE	36
6.6	ADD STAIRS	38
6.6.1	<i>Stair orientation</i>	39
6.6.2	<i>Spiral staircase direction</i>	40
6.7	STAIRS IN 2D PLAN	41
<b>7</b>	<b>CREATE UPPER FLOOR</b>	<b>43</b>
7.1.1	<i>Different Upper Floor Wall Texture</i>	46
7.2	ADD DOORS	48
7.3	ADD WINDOWS	48
<b>8</b>	<b>ADD ROOF</b>	<b>52</b>
8.1	WHAT DO THE LINES ON THE ROOF MEAN?	55
8.2	CAN'T SELECT THE ROOF?	55
8.3	IS THE ROOF STRUCTURE A GOOD DESIGN?	55
8.4	ROOF PROBLEMS	56
8.4.1	<i>Why do I see grey panels below my roof structure</i>	56
8.4.2	<i>How can I create a L shape building with 3 gable ends.</i>	59
8.5	DORMERS: HOW TO CREATE A REBATED DORMER	62
8.6	HOW TO CREATE A DORMER WITH A ROOF / GUTTER BREAK	71
<b>9</b>	<b>ADD EXTERNAL FEATURES</b>	<b>73</b>
<b>10</b>	<b>INTERIOR DESIGN</b>	<b>75</b>
10.1	ADDING FURNITURE	75
10.2	ADDING FLOOR TILES / CARPET	78
10.3	ADDING WALL TILES	78
<b>11</b>	<b>ROOM PLANNING EXAMPLE</b>	<b>79</b>
<b>12</b>	<b>LANDSCAPING</b>	<b>80</b>
12.1	I CANT CHANGE THE HEIGHT OF MY GROUND FLOOR	81
12.2	MY PROJECTS ON A PLATEAU	81
12.3	PATIO / FLAGSTONE DESIGNS	82
<b>13</b>	<b>SPLIT LEVELS</b>	<b>87</b>
<b>14</b>	<b>ATTICS AND ATTIC CONVERSIONS</b>	<b>89</b>
14.1	WHY IS MY ATTIC/ROOF ON THE FLOOR?	89
14.2	I HAVE SPACE IN MY GABLE END, HOW DO I FIX THIS?	89
14.3	HOW DO I CREATE A DORMER THAT BREAKS THE ROOF LINE?	89
<b>15</b>	<b>FLOOR JOISTS / EXPOSED BEAMS</b>	<b>90</b>

<b>16</b>	<b>CELLARS</b>	<b>93</b>
<b>17</b>	<b>CREATING OWN TEXTURES</b>	<b>94</b>
17.1	TEXTURE PROBLEMS	94
<b>18</b>	<b>MULTIPLE BUILDINGS</b>	<b>95</b>
18.1	MULTIPLE LEVELS (SPLIT LEVELS)	95
18.2	SERVICE LAYER	96
18.3	COMPLEX ROOFS	97
<b>19</b>	<b>CREATING OWN OBJECTS</b>	<b>99</b>
19.1	3DS OBJECTS	99
<b>20</b>	<b>2D PLANS</b>	<b>100</b>
20.1	PRINTING PLANS	100
20.2	USING PLANS FOR PLANNING APPLICATION	100
20.3	MULTIPLE VIEW PLANS	100
20.3.1	<i>CreativeLines</i>	100
20.4	PRINTING PROBLEMS	101
20.4.1	<i>I can't print out my plan onto a single sheet. It always wants to print onto multiple sheets.</i>	101
20.5	PROJECT POSITION	101
20.6	END ELEVATION VIEWS	102
20.7	PLANNING APPLICATION DRAWINGS	103
20.8	BUILDING REGULATION DRAWINGS	104
<b>21</b>	<b>CROSS-SECTIONAL VIEWS</b>	<b>105</b>
21.1	CROSS-SECTION PROBLEMS	107
21.1.1	<i>When I create a cross-section side / front elevation view the view is the centred on the sheet</i>	107
<b>22</b>	<b>PHOTO-REALISTIC IMAGES</b>	<b>108</b>
22.1	SHADOWS CAST BY SUN, MOON AND LAMPS	108
22.2	PRINTING RAYTRACED IMAGES	108
<b>23</b>	<b>3D VIEW OPTIONS</b>	<b>109</b>
23.1	SAVING A VIEW	111
23.2	3D VIEW PROBLEMS	112
23.2.1	<i>Disappearing building</i>	112
23.3	3D PREVIEW	114
<b>24</b>	<b>THE BLOCK EDITOR</b>	<b>115</b>

<b>25</b>	<b>TITLE BLOCK</b>	<b>117</b>
<b>26</b>	<b>IMPORTING DXF/DWG FILES</b>	<b>118</b>
26.1	IMPORTING TOWN PLANS IN DXF FORMAT	119
26.2	DXF PROBLEMS	119
<b>27</b>	<b>IMPORTING A .BMP FILE AS A SOURCE FOR TRACING</b>	<b>121</b>
<b>28</b>	<b>ARCON MACROS</b>	<b>122</b>
<b>29</b>	<b>CREATIVELINES</b>	<b>123</b>
<b>30</b>	<b>APPENDIX</b>	<b>125</b>
<b>31</b>	<b>ADDENDUM</b>	<b>126</b>

# 1 Introduction

This document is a result of the success of ArCon. Although a 700+ page document is supplied with ArCon, it can take many hours and days of use before the best method to achieve a specific result is identified. ArCon is big. How many times have you found a piece of software easy to use, and then later found that the ease of use is in fact the first hint of restrictions and capabilities that you will very quickly hit. ArCon is easy to use, but will take many hours of use to master.

This tutorial book is created for users of all levels.

It is intended to expand this book by demand. The main objective of this book is to show how a typical project is created from start to finish. This is the first problem as there is no such thing as a typical project. Every project is different, placing different demands on the software and the user.

We must not forget who our target audience is. ArCon was created for Architects, but it has been quickly adopted by self-builders, builders, interior designers- in fact anyone that has a task that involves a building.

I do not intend to teach architecture or building methods. I do not intend to teach drawing methods or interior design. I will teach you how to use ArCon. How you then apply ArCon is then your task.

I have based the majority of the project on an existing house. A modern design and typically English. A successful design created by Custom Homes Ltd and copied from their catalogue (with their permission).

Along the way, we will make detours to examine other possibilities and therefore parts of the tutorial project will also use other example houses.

The Technical Support line was/is a great source of questions and its pleasing to note that the demand for Technical Support has dropped dramatically since releasing this document.

This manual is an ongoing task and will be continuously updated, so please visit our website ([www.3darchitect.co.uk](http://www.3darchitect.co.uk)) to download the latest version. Updates will be notified on the 3D Architect Forum.

Each section is numbered, e.g. 1.2.1, the more detail the section. On a first pass through this document, concentrate only on sections such as 1, and 1.1. Section 1.1.1 will cover more detailed information, while section 1.1.1.1 will be comprehensive and possibly not required in a first pass tutorial. So the more numbers in a section number, the more detailed it will be.

This tutorial is based on ArCon+ 5, (Professional) but is also applicable to ArCon 5 (also known as ArCon Standard). The tutorial is also applicable to ArCon+ 6.5, which is the

## ArCon Overview

---

current top of the range product. The screen shots may vary from your own system depending upon whether you are using Windows 95, 98, NT, Me or XP.

Finally remember that this is not the reference manual, you already have that in the form of 700+ pages on your CD. (800+ for ArCon 6.5). This is how to... You should always take the opportunity to either use the context sensitive help to get more details on a function or refer to the reference pdf manual.

This best way to learn- is to teach.

Les Player

Director of Technical Operations

Online Warehouse Ltd

Les Player was former European Technical Director of Atari, responsible for introducing the Atari ST into Europe in the 80's ('Don't blame me for Pac Man, ET or Space Invaders- I was just following orders'). Later responsible for GFA-Basic in UK, Germany and USA, and more recently responsible for the localisation of 100+ software products for Data Becker. If that all sounds like a life time of fun and games, you will be pleased to note that Les also was a Weapons Systems Engineer, installing weapons systems onto nuclear submarines- which was the biggest fun of all.

All this work is dedicated to Simmi, my wife and my co-star in The Village TV series and my life.



## 2 ArCon Overview

ArCon is a very powerful product. It is made powerful by its intuitive ease of use and its ability to be extended indefinitely with additional macros. ArCon can be viewed as a base product upon which many specific applications can be built. Most users will however use the tools supplied, but it gives you confidence to know that if you really wanted it to do something else- it is possible.

We will quickly view the capabilities of ArCon using the completed project Tenterden.acp. This is the project that we will build step by step, so it makes sense to use this as our first example.

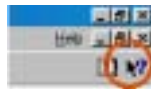
Start ArCon.

Click on the file menu **File – Open**

Locate the **Tenterden.acp** project located in  
**ArCon/Projects/CustomHomes/Tenterden.acp**

### 2.1 Help!

You can call up the help menu entry on any icon by selecting



and then clicking on the icon that you want help with. This is context sensitive. Pressing the F1 key will also summon help.

Locate the 700+ page Manual.pdf file, on the distribution CD. This file is suitable for printing (the help file format is not), and is therefore ideal for studying the more advanced features.

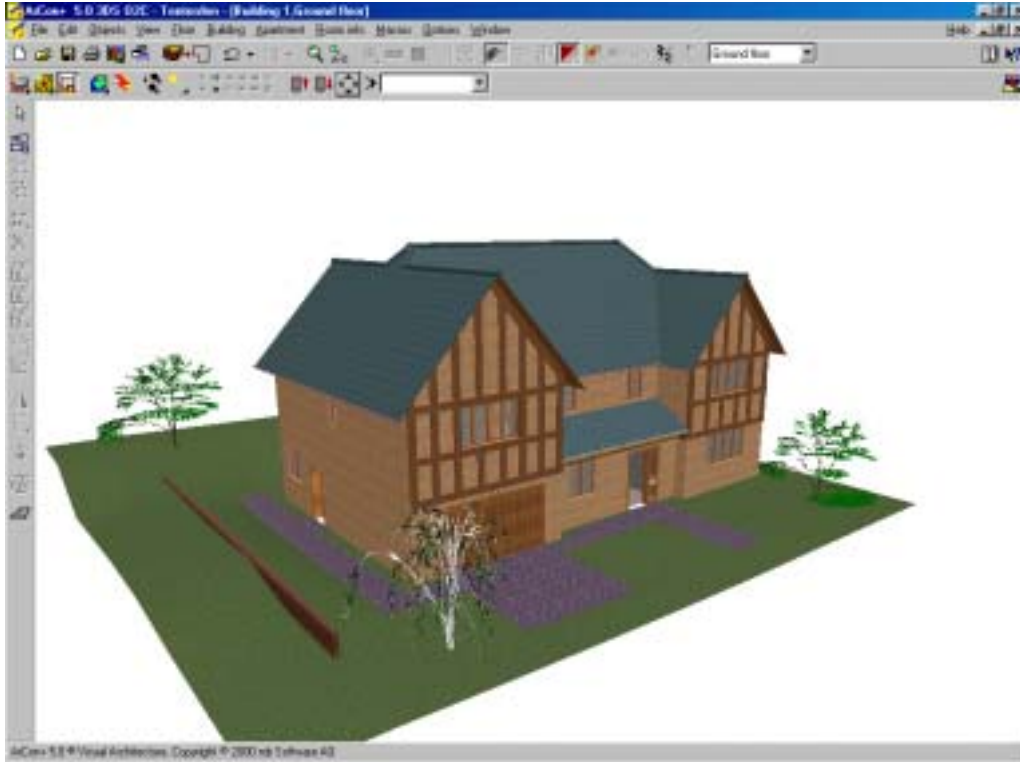
There is also the 3Darchitect forum, where you can communicate with other ArCon users. Many of these users have years of experience and are willing to offer advice, especially with self-build and interior design projects. You can find the forum on the [www.3darchitect.co.uk](http://www.3darchitect.co.uk) web page.

### 2.2 3D Mode overview

This particular project was saved while in 3D mode. This mode is used to add textures and materials to walls, floors and objects by dragging the texture onto the target. You can rotate the building to view it from any angle. This mode also allows you to walk through the building.

## The ArCon Project

---



This is in fact the completed tutorial project. This is what you will be able to complete.

### 2.2.1 My Screen looks different!

Most of our screen shots were produced using ArCon+5 on Windows 98. ArCon+ 6.5 has additional icons and menus, ArCon 5 has less. ArCon will also look different when running on Windows XP.

ArCon also allows additional modules to be loaded, such as o2c Export Filter. Some of our screen shots indicate that the o2c Export Filter is loaded by displaying 'o2c' in the title bar. Closer examination will also show additional menu entries.

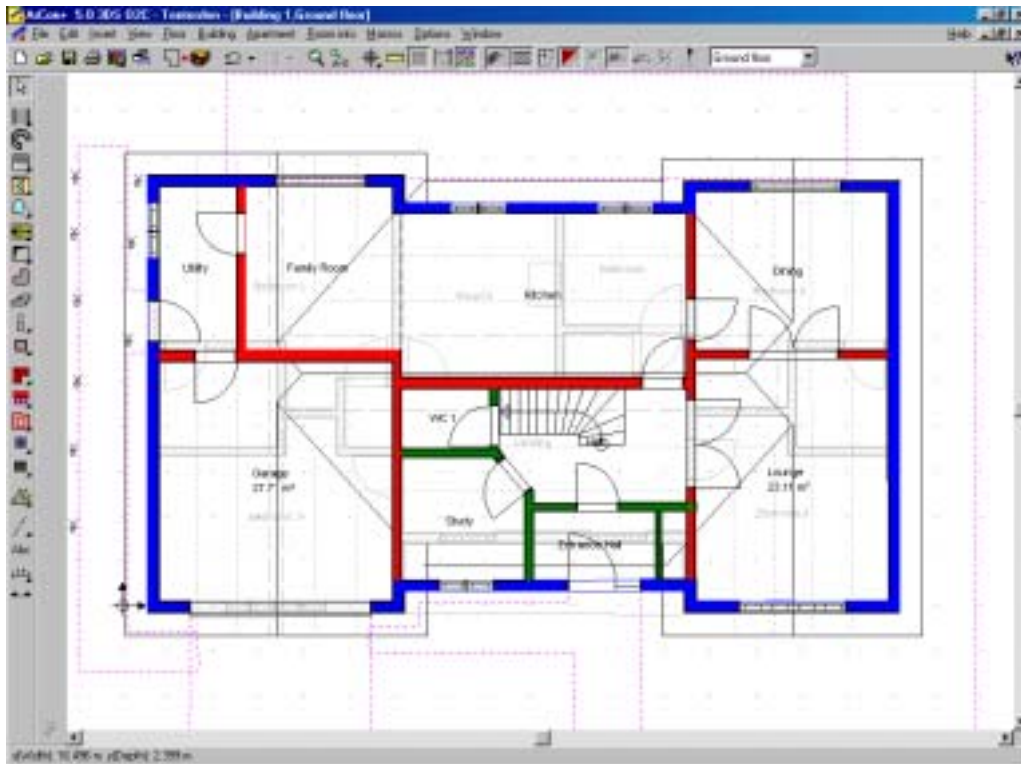
## 2.3 The Catalogue overview

While in 3D mode, the catalogue is visible. Press **Alt + V** then **Alt + T** to toggle the Catalogue on/off

Switch to 2D mode by pressing F12.

## 2.4 2D Mode overview

The 2D mode is used to construct your project. Walls, windows and doors are positioned by dragging them into position from the icon bars.



The above view shows coloured walls. This is only possible in ArCon+.

## 3 Plan your project

This will depend upon your objectives.

There are two possibilities:

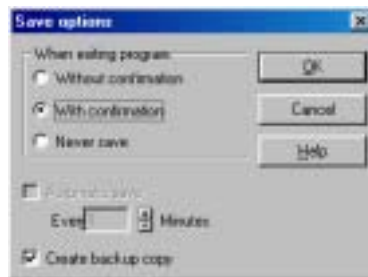
- Free design as you go
- Use an existing printed plan

Our tutorial is based on an existing design, allowing us to concentrate on the project and not the actual design.

### 3.1 Optional changes to ArCon

#### 3.1.1 Backups

Most of these options exist in the Options menu. The most important is the backup option. No matter what software you use, you will eventually lose data, either due to hardware error, loss of power, human error or software error. It will happen! So please always make regular backups. ArCon can help you do this automatically. Click on Options – Program – Save to activate the **Save options** dialog.



I prefer to save with confirmation every 15 minutes, and with a backup copy. It is also useful to save your project at different stages, so a regular save of myproject001.acp, and then myproject002.acp etc, will mean that you can always return to a known project state.

## 4 Starting ArCon

Starting ArCon will result in an empty screen show just 3 menu options.  
Click on the **File-New** menu.

This will display the File options dialog. Here you can set the floor to ceiling height of your floor. Note that the floor to ceiling height has to be the same for all rooms on a specific floor level. (To create split levels you should create separate building (ArCon+ only)).

Set your **Floor height** to 2.4 – 2.8 m. Exit the dialog with **OK**

You will now see an empty work sheet displayed, perhaps displaying a grid.

### 4.1 Establish the scale

You now want to set you paper size and scale. This will of course vary from project. Most architects will create their plans on A1 or A2 on a 1:100 or 1:50 scale. Your choice of scale will be determined by the paper size that your system can print to, which is likely to be only A3 or A4. However you can print a large sheet over several A4 sheets, or print your project to a file, which can then be emailed to someone who has a larger printer.

ArCon can print to any device that has been installed on windows. ArCon only knows about the printer by talking to Windows, so if you install a printer driver for a large format printer, ArCon doesn't know that it isn't actually connected, enabling you to print to a file, for subsequent printing. These features depend upon the printer/printer driver and therefore beyond the scope of ArCon.

### 4.2 Paper Size

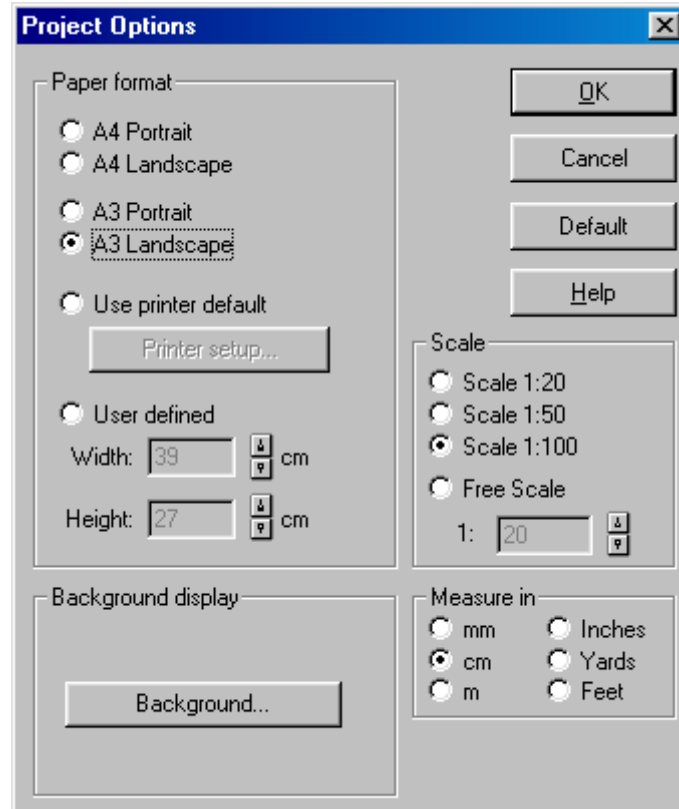
To set our **Scale** and **Paper Size** click on **File-Project options**

Select your **Paper size**, in our case to **A3 Landscape**.

Select your **Scale** to **1:100**

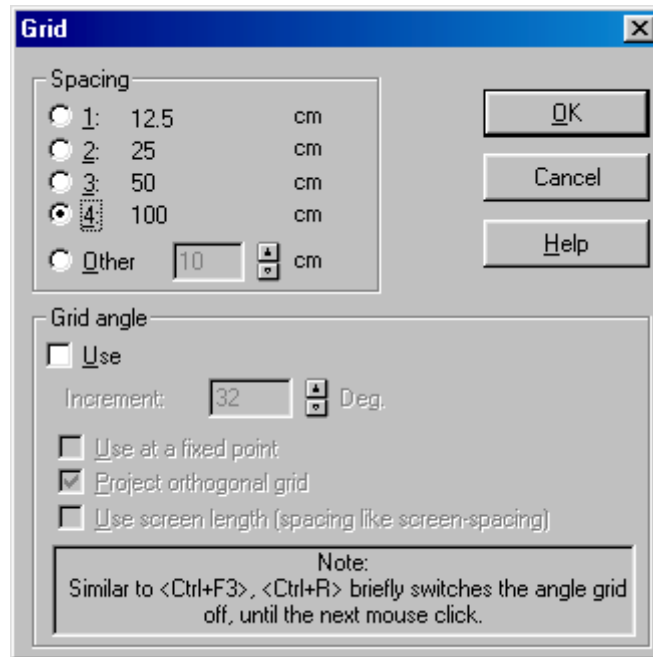
Select your measurement system to **metric** by setting **Measure in** to **cm**

To determine your correct scale you should determine the width of your entire project. Now is the time to decide whether you want to show adjacent properties or surrounding areas. For example if your property is 50m wide, setting the scale 1:100 would require you to have a paper size of 0.5m width. So if you only have an A4 sheet, you are going to have to change your scale.



### 4.3 Grid Size

We will be using the grid to help place walls, and so it is useful to set our grid points to a convenient setting. Right click on the Grid icon in the top menu bar, to display the **Grid** dialog. This can be changed at any time but for now set the grid **Spacing** to 100 cm



#### 4.4 Compass

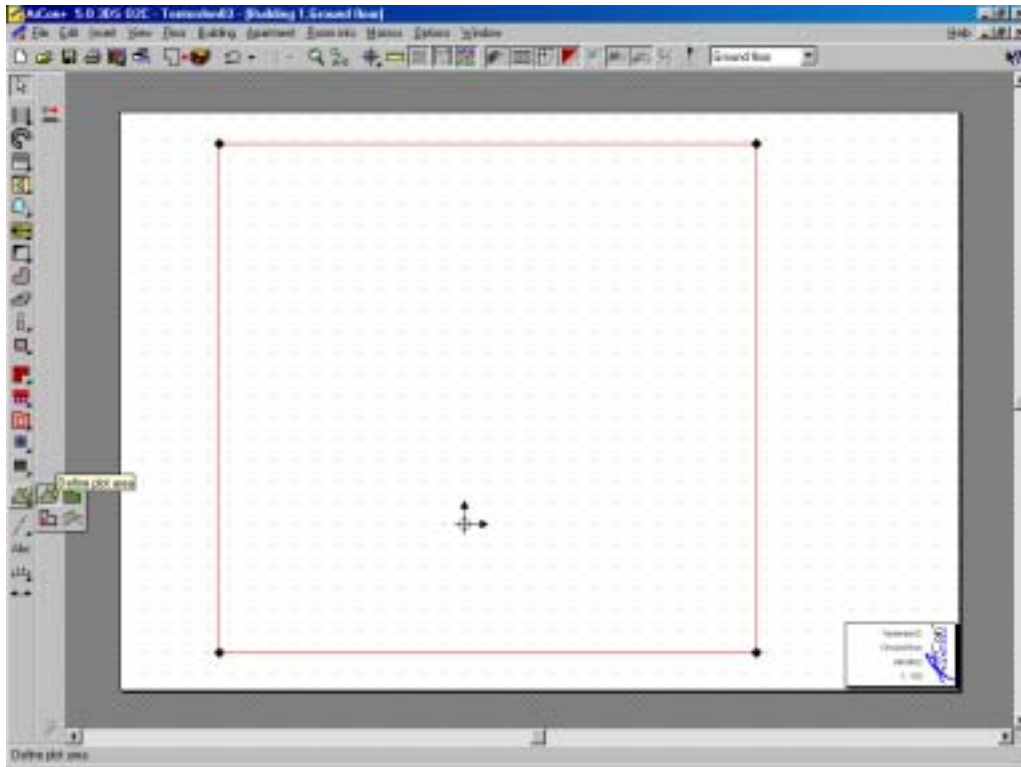
If you wish to use the raytracing features, for example to examine how shadows will fall due to the Sun, then it is important that your plan is pointing in the correct direction.

#### 4.5 Establish boundaries

You should define your plot. Although you can do this at any time, it will help ensure that you have selected the correct scale and paper size.

## The ArCon Project

---

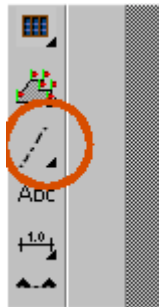


If you later find that you have positioned your plot in the wrong location on your sheet, then refer to section Project Position.

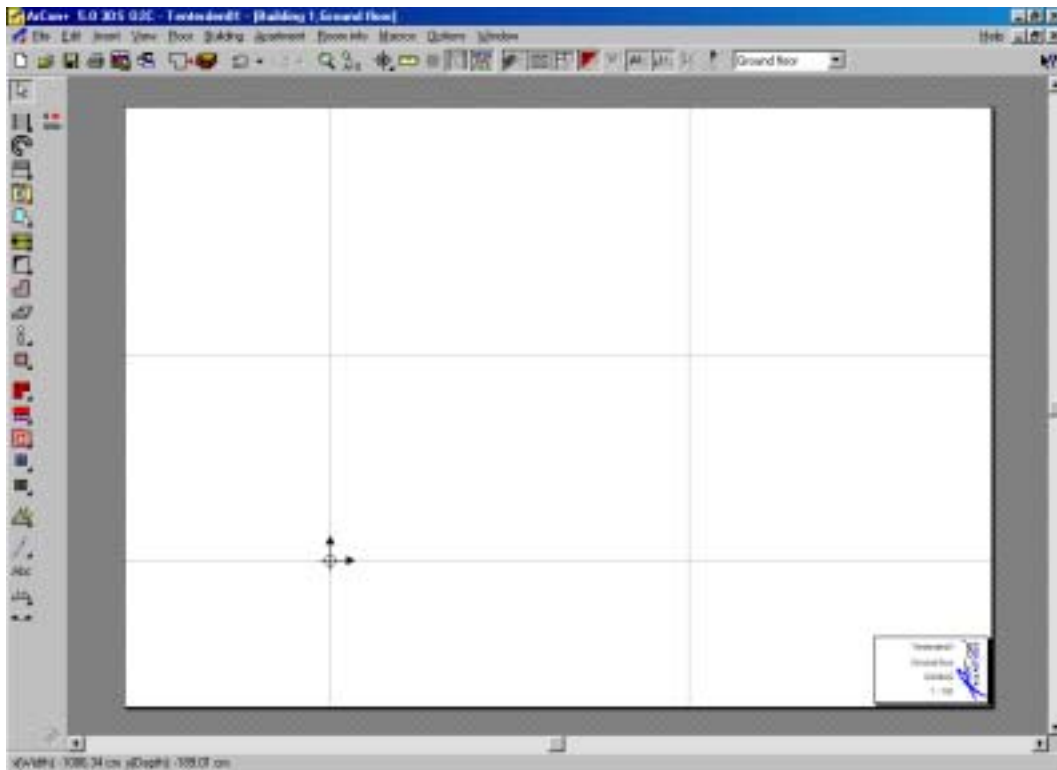


## 5 Place Guidelines

There are several methods to plan out a building. The easiest and most accurate method is to use guidelines to plan your building, even before placing the first wall. This is similar to pegging out your plot. (Eventually you will be able to work without guidelines as you will find that you can place walls at a set distance from a reference wall.)



Select the guideline tool from the icon bar. Use the guidelines to define the outside perimeter of your building.



## The ArCon Project

---

You can use the 'Set distance' tool to space your guidelines at exact distances.



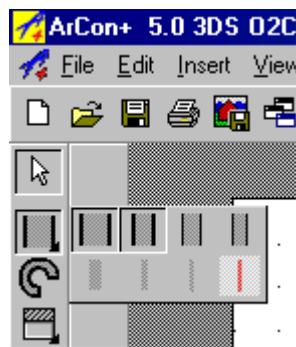
For this function to work you must have the **Snap** function switched **On**. To check the status of the Snap press **Ctrl + Spacebar** to review the **Snap dialog**

## 6 Ground floor

### 6.1 Place Ground floor walls

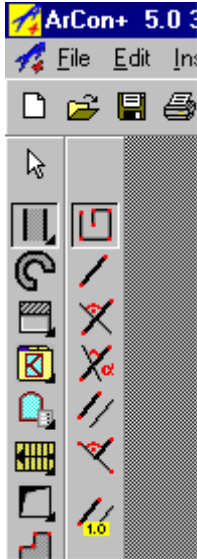
#### 6.1.1 How to place a wall

Click on the wall icon to drag out the 8 wall options. These represent different wall thickness, which you can set to your own requirement by right clicking on the wall icon.



After selecting a wall type, click anywhere in the work area, to specify your wall start point. Click again to specify you wall end point. Each subsequent click will create a new wall section. You can terminate the wall input with either a **right mouse** click or by pressing **Esc**

Note that you have various wall input methods selected by a second vertical icon bar. The first wall option is for chain walls. If you want to enter a single wall at a time, then use the second icon down.



Experiment with placing walls using the 7 various methods. Then use **Undo** to remove all walls placed, because we are going to place our first wall by snapping it to a guideline.

### 6.1.2 Wall alignment using Ctrl W

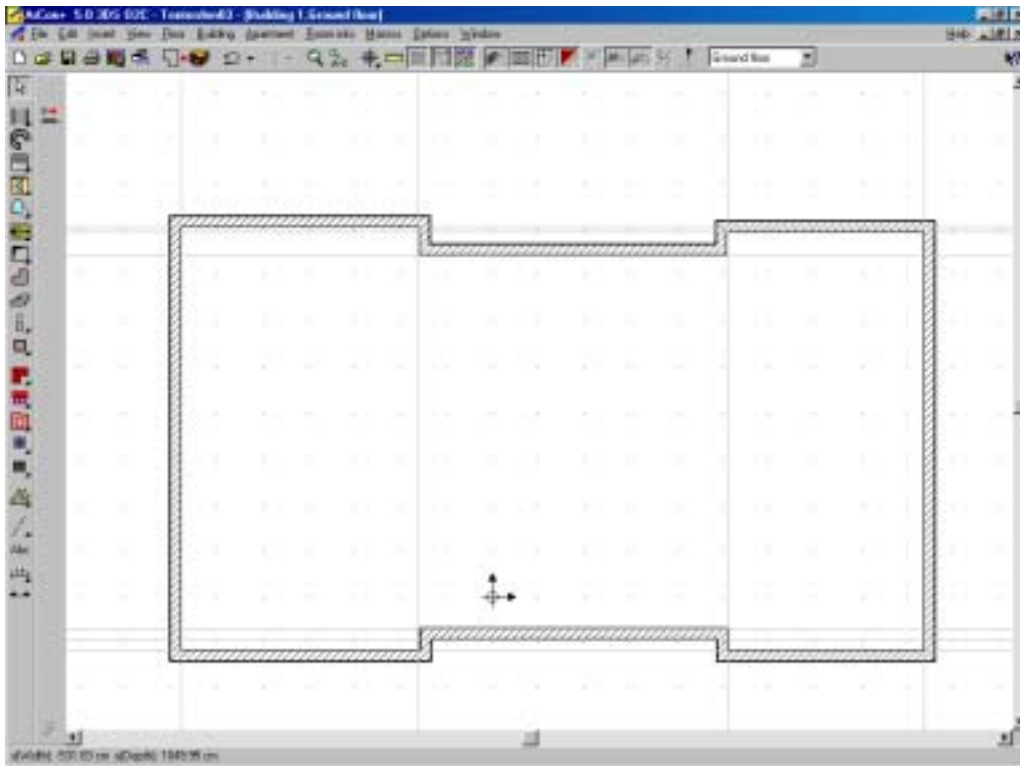
If you can not control your wall lengths, and your internal room dimensions are not what you expected then follow this guide.

We are going to create a room 5.0m x 5.0m internal wall to wall measurement using a grid:

- Enable the Grid and set the Grid spacing to 1.0m (right click on the Grid icon)
- Select the Wall icon and wall type
- Select Multiple walls icon (as placement method)
- Place wall start with a single click. You can let the wall snap to the grid if appropriate.
- Drag wall out to 5m, either snapping to grid or using the wall length details in the measurement status bar.
- Before placing the end wall position with a second click, use **Ctrl W** to toggle between the wall edges and wall axis. This defines which edge you wish to place the wall. The first wall section will be our north horizontal wall and we will therefore snap along the bottom edge of the wall. When you have toggled through to this edge, click the left mouse button to place the wall.
- Now place the 3 remaining walls. ArCon remembers that you wish to snap to the inside edge of the wall and will therefore place all wall edges measured on their inside edge.

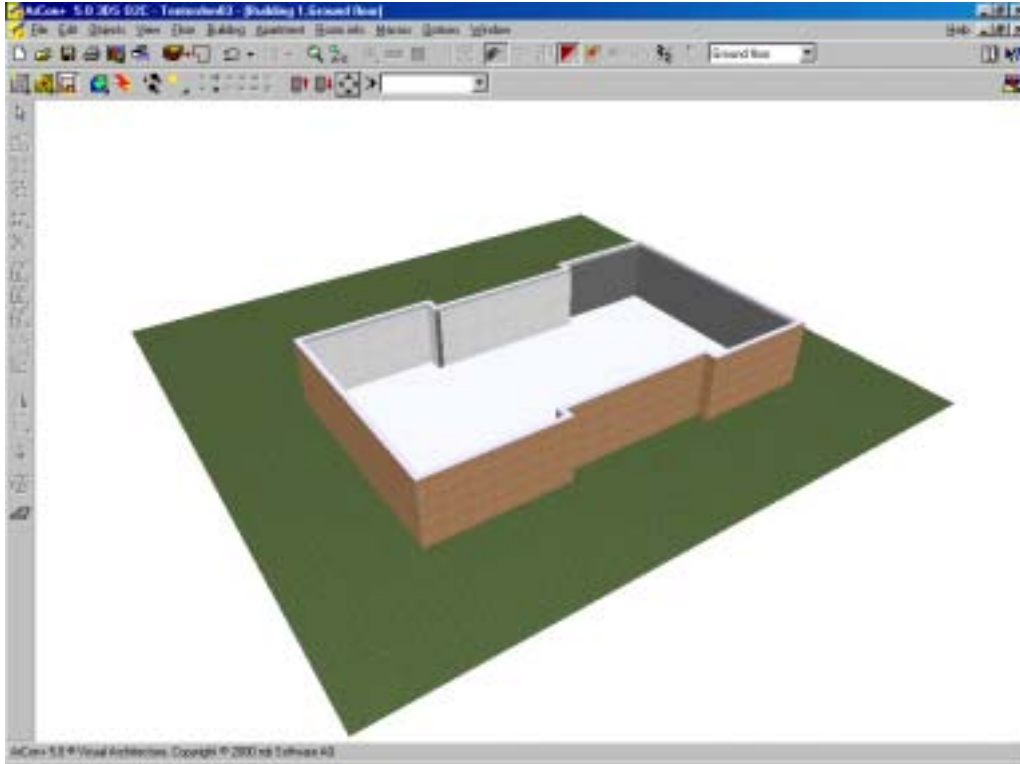
This time we will do the same but we want a room with 5.5 m inside measurement and not use the grid. We will not use the Grid as the wall will not always be a length suitable for the Grid:

- Disable the **Grid**, but keep snap enabled. (**Ctrl Spacebar**)
- Select wall icon and wall type
- Select Single wall icon (as placement method)
- Place wall start with a single click.
- Drag wall out to 5.5m, using **Ctrl W** to toggle between the edges and axis to define the working edge as the inside edge (relative to our room) and then click once to place the wall. If the wall is not the exact measurement you require then double click on the wall, and set the wall length in the Wall options dialog.
- To place second (and subsequent wall sections), click on the end of the existing wall. Again use **Ctrl W** to toggle through the edges/axis.
- You now have a room, which measures 5.5m x 5.5m internal measurements.



The plan that we worked from supplied only internal room dimensions. We therefore placed our guidelines at the interior dimensions. The walls were then snapped to the lines along their internal edge.

Pressing F12 will show you the plan in 3D:



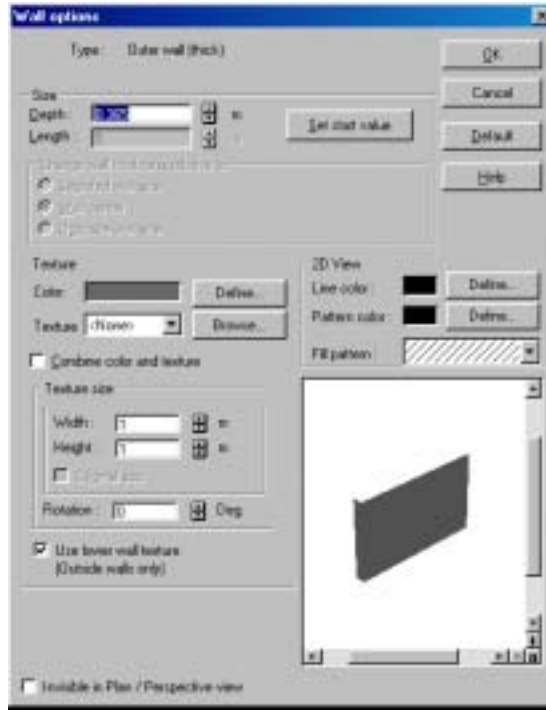
### 6.1.3 Applying textures to exterior walls

The above image shows the walls with a brick texture. This was achieved by dragging a brick texture from the catalogue onto the wall.

Remember you can create your own textures using a scanner or digital camera, or even draw your own using any drawing/paint software.

### 6.1.4 Changing the wall thickness

Right click on the wall icon to display the Wall options dialog:



You can now edit the wall parameters including its thickness (depth). Note that you can also change a walls texture, and also define its 2D colour and hatching. (ArCon+ only). Pressing the Default button will save the changes you have made as your default.

### 6.1.5 Moving / Editing Walls

To edit a wall you double click on it. If the wall is not connected to another wall you may edit its length, using the Wall options dialog. If the wall is connected to another wall, then the Length parameter will not be available. You can drag the wall away from its connecting walls and then edits length, or simply delete the wall and redraw it. This is another advantage for using guidelines, as you will know exactly where to replace the wall.

### 6.1.6 Stretching Walls (ArCon 6.5 only)

ArCon 6.5 now resolves this problem and has an additional set of wall editing tools.

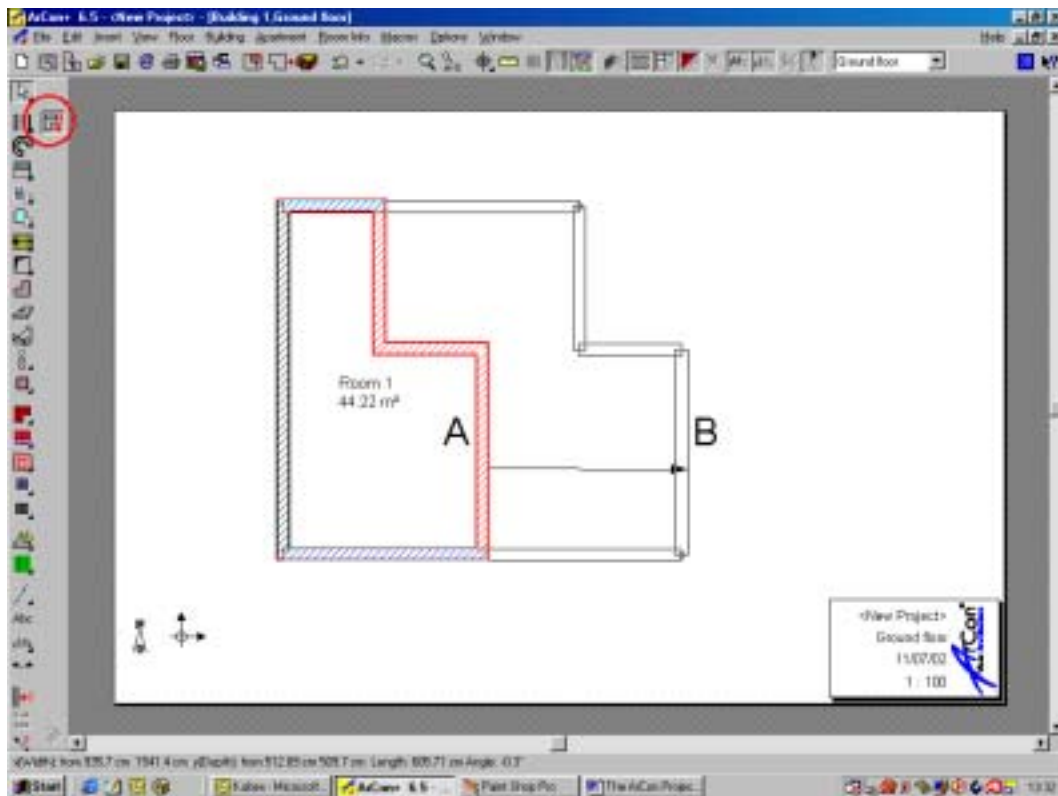
## The ArCon Project

---



These 7 new wall functions allow you to edit any placed wall:  
Divide, Dibide and move, Move Wall End, Length (or shorten ) Wall,  
Trim Wall, Trim 2 Walls together and Divide Wall into equal parts.

Walls can now also be moved along with any connected wall.



For example, the above walls are selected and dragged from point A to B. The vertical walls only change in position, but the upper and lower horizontal walls will change in length. This is achieved as follows:

1. Ensure the **Partial selection** option is set in the Snap dialog (**Ctrl + Space**)



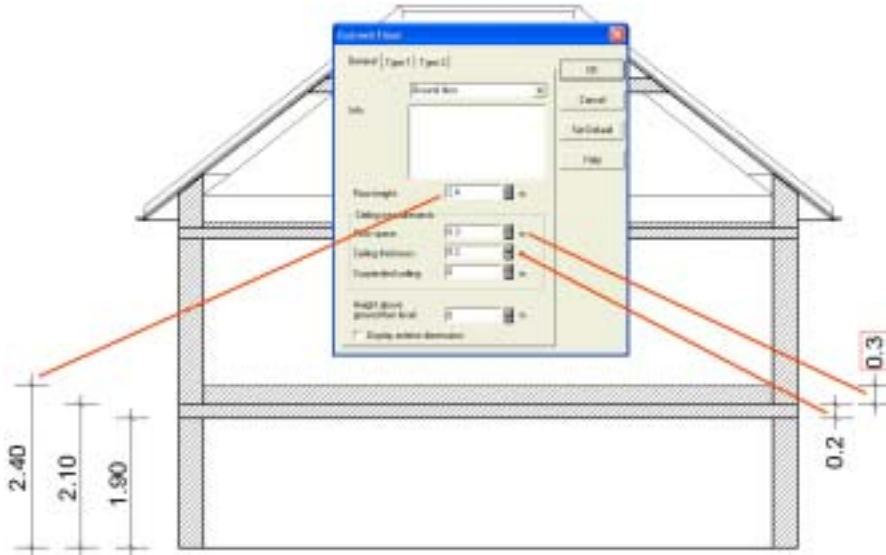


2. Draw a frame only the walls to be moved.
3. Select Move Selected Plan icon.
4. Drag the selected walls to a new position. Connected walls will be stretched.

### 6.1.7 Establish the Floor Height

You will note that when you start a new project, the first thing that ArCon will ask you to enter are the floor height details. You can normally accept the default values as these can be adjust at any time later. However it is best to set the values correct to start with otherwise you may find your self having to adjust other heights (e.g. sill heights).

Here is a quick graphic explanation of these values in the Current Floor dialog:



A common mistake is to assume that the **Floor height** is the floor to ceiling height. It is not! The floor to ceiling height would actually be the **Floor height – Floor space – Ceiling thickness**.

## 6.2 Add Internal walls

Select another wall style to define your interior walls.

You should use the guidelines again to snap your interior walls to:

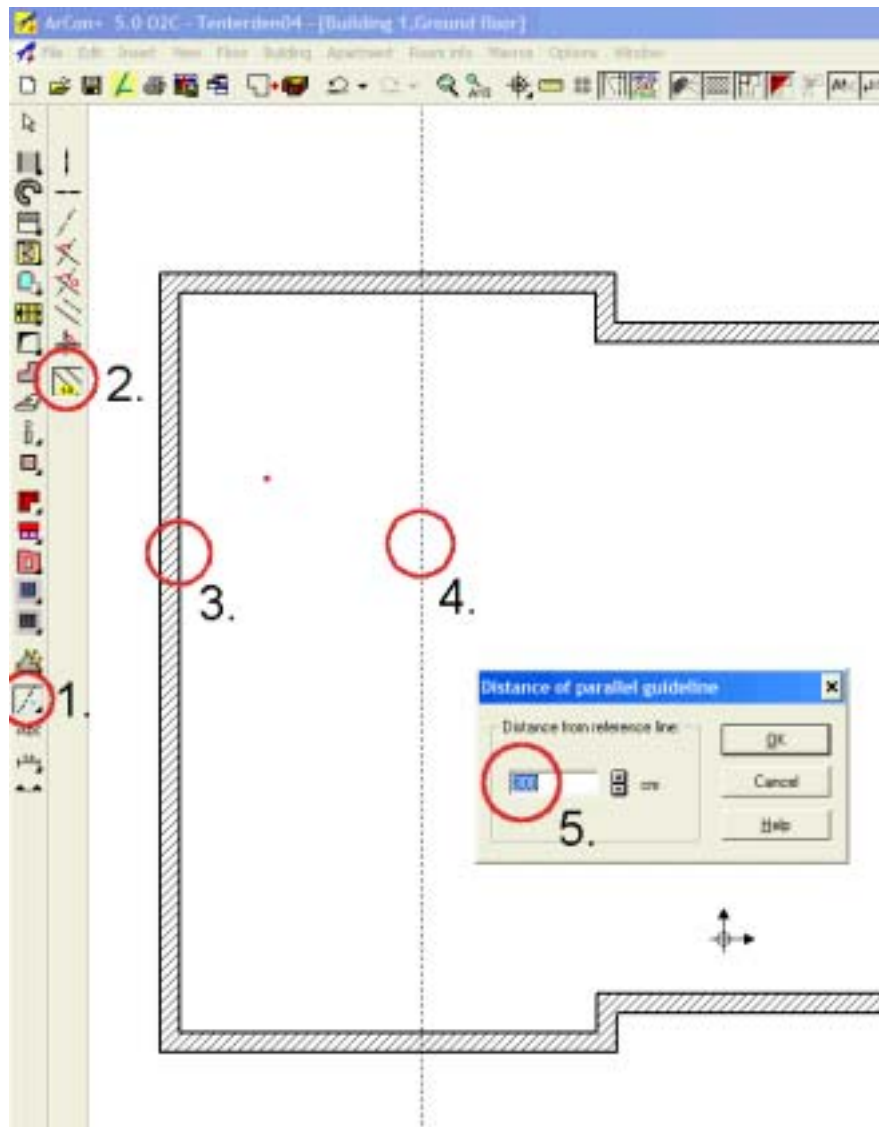
### 6.2.1 Placing internal walls using guidelines

Here is a detailed explanation of how to exactly place an internal wall relative to the inside edge of an external wall:

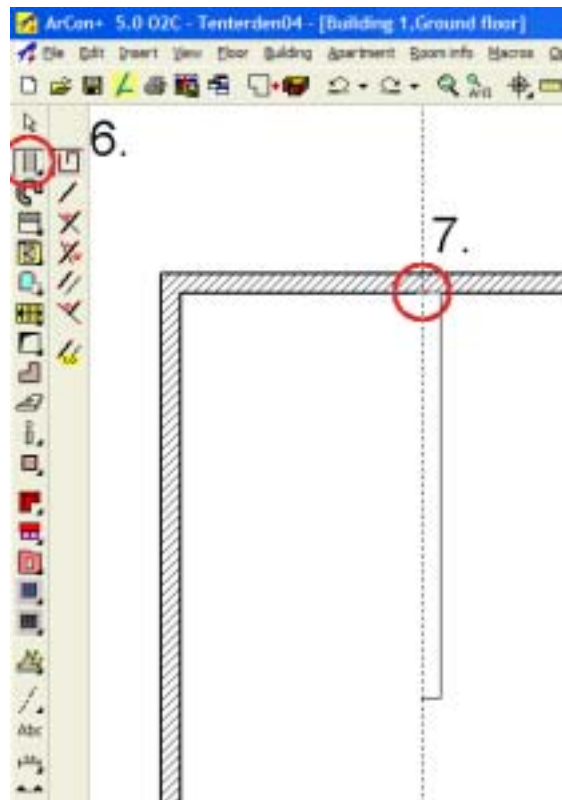
1. Click on the Guide line tool in the vertical tool bar.  
The secondary vertical tool bar appears showing an additional 8 tools relating to guide lines.
2. Click on the Set distance parallel guide line tool.
3. Now click on your reference point, in this case the internal wall edge.

Note that your cursor will snap to wall edges.

4. Click anywhere on the side you wish your guideline to appear. In this case click in the vicinity of point 4.



5. A dialog appears allowing you to enter the exact distance from the reference point.  
Your guideline will then appear at the select distance from the reference point.
6. Now to place the wall along the guideline. Select the wall icon.
7. Click the start position of your wall on the guideline.



The next click will define the wall end point, but before you place the end point, you will see that you have several options.

You can move the mouse cursor anywhere on the plan to define the end point.

You can also use **Ctrl W** to define which edge of your new wall will be relative to the reference point. There are 3 options that you can toggle through, each you press Ctrl W.:

- Left edge
- Centre line
- Right edge

When you have the wall edge and end point of the wall selected, fix this with the final click and you wall will appear.

Note: If this tool does not appear to work for you, press **Ctrl-Space bar**

The following dialog will appear.



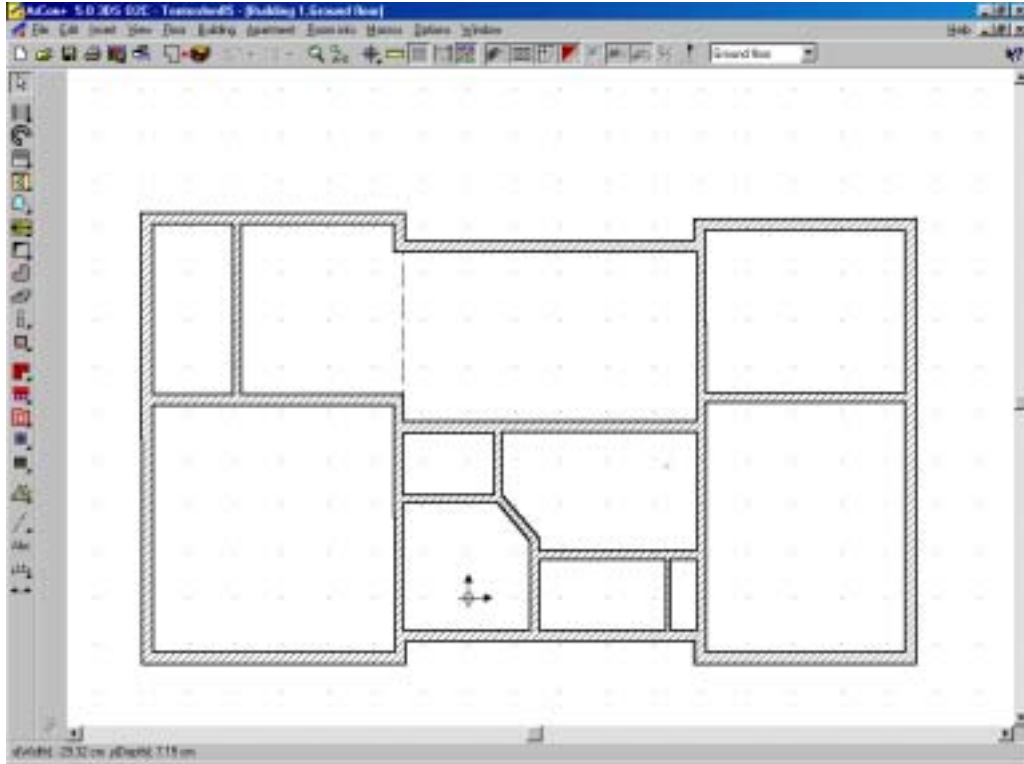
Ensure that you have Snap switch on and that you can snap to walls.

As you complete each room, the room is named automatically. Clicking on the name will allow you to change the room name.

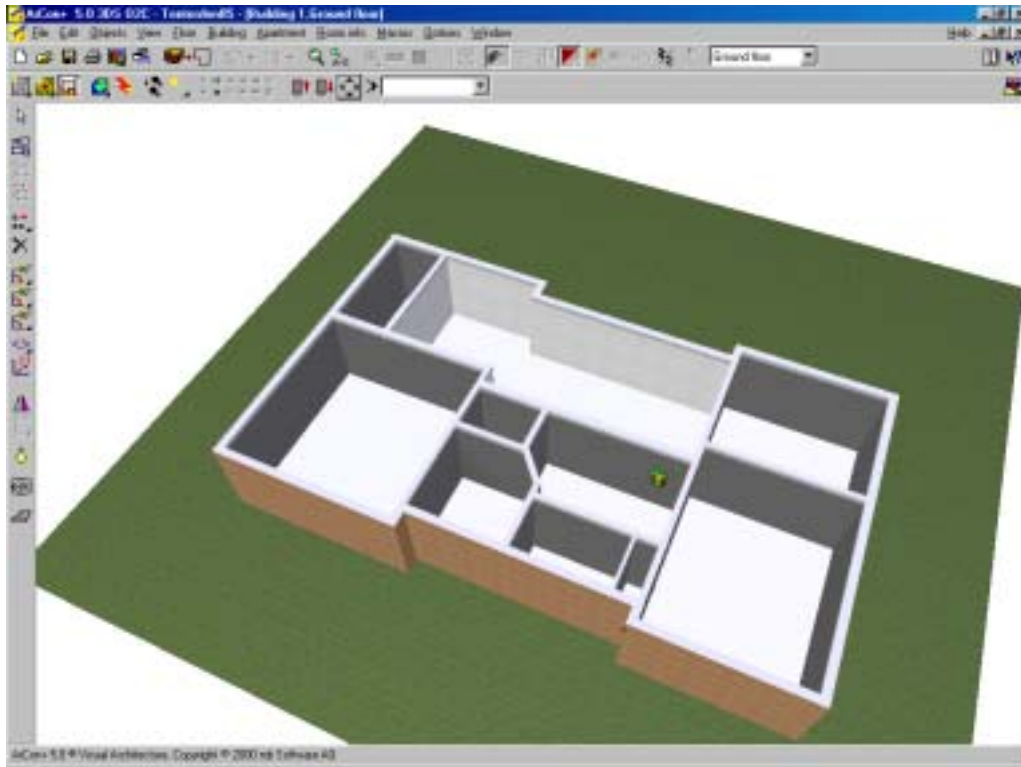
The following drawing shows the use of an internal wall at an angle and a virtual wall to divide the kitchen and breakfast area. The virtual wall is the last wall option in the wall roll out menu. (ArCon+ only).

## The ArCon Project

---



Press F12 for a 3D view:



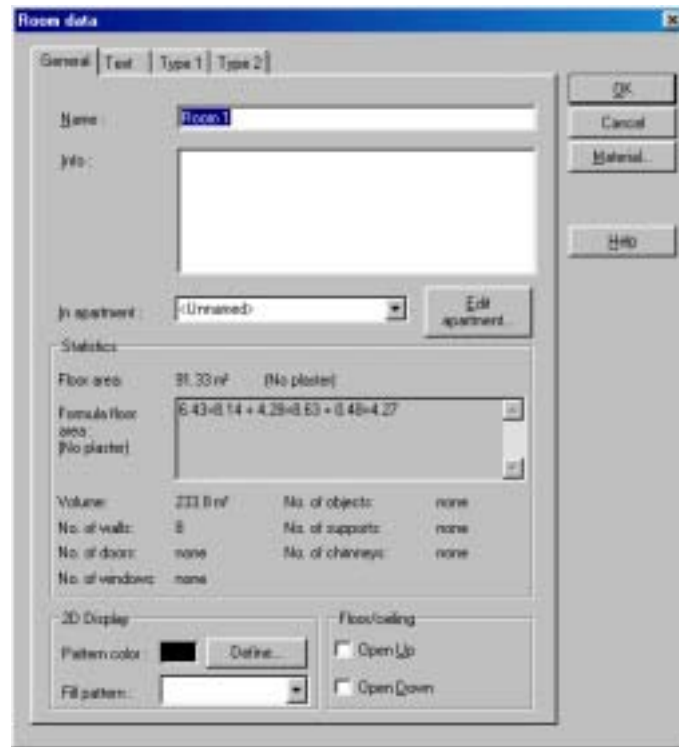
## 6.2.2 Rooms

As you define each room by adding internal walls, you will notice that the room become named. In fact it's a good indication that your wall has connected correctly as a room can only assume a name after it is correctly defined by 3 or more walls. The rooms are named as default as Room 1, Room 2 etc.

To rename a room double click on the room to activate the **Room data** dialog. In the **Name** section, you can enter your own room name. In the Info section you can add any other notes about the room. With this same dialog you can also specify whether the room has a ceiling and/or floor with the **Open up** and **Open Down** options. The default has this two check boxes as clear, ie the room has both a floor and a ceiling.

## The ArCon Project

---



Click on the Text tab to reveal additional room options:

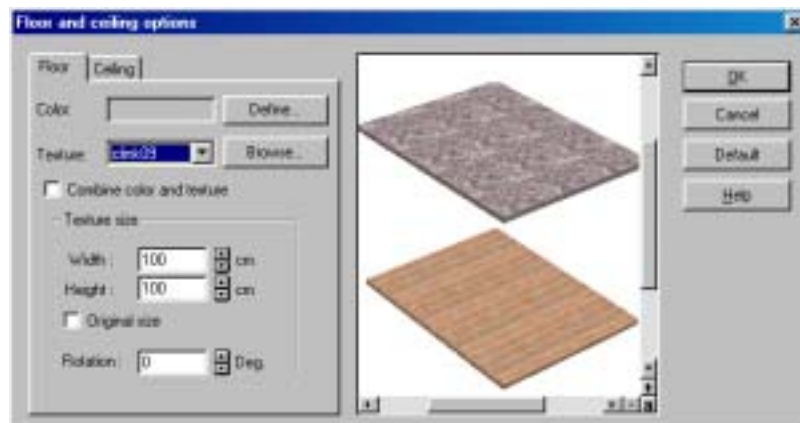




Here in the General section you can request that the room not only displays the name but also the comment, floor area and volume.

I suggest that you don't bother with the Type 1 and Type 2 tabs which concern advanced area use calculations.

Click on the **Material...** button to activate the **Floor / Ceiling** options dialog:



This dialog will enable you to specify different textures for the floor and ceiling.

You can also drag a texture directly onto a floor or ceiling while in 3D view. Note however that until you specify that the floor and ceiling do have different textures using this dialog, the room and ceiling will assume to have the same texture.

### 6.3 Add Doors



To add a door click on the Door icon and drag the door icon menu out to give you the full range of doors available. After selecting a door, click on a wall section where you want to place it.

There are 59 door variants, however most of the doors have additional options to specify the door fill.

#### 6.3.1 Edit door size

Your door size requirements may be different to the door sizes supplied. No problem, just right click on the door icon and the following Door dialog will appear:



You can change the door size, opening method and materials used. Clicking default will change all future uses of this door to use the same parameters. You can also edit any individual door already placed within a wall by double clicking on that door.

If you want to set your current door settings to your current options, then click on the **Default** button. This saves the values in the ArCon.ini file so that the next time you restart ArCon these will become your current settings.

#### 6.3.1.1 Door Sizes

Typical door sizes (without frame) for UK:

2134 x 914 mm  
2032 x 813 mm  
1981 x 762 mm  
1930 x 711 mm

ArCon enables you to edit a door set to any size, as described in section 6.3.1. You should take the door size from your door manufacturers catalogue.

You will be pleased to know that ArCon 6.5 has a complete door editor, enabling you to create any door style.

## 6.4 Add Windows



To add a window click on the Window icon and drag the window icon menu out to give you the full range of windows available. After selecting a window, click on a wall section where you want to place it.

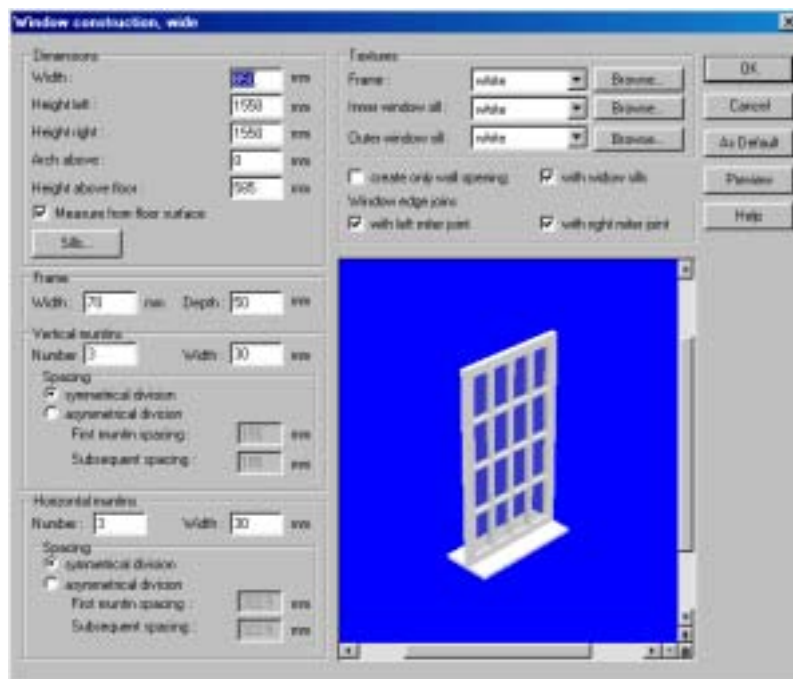
### 6.4.1 Window icons

Note that several of the icons have a red triangle in the lower left corner. This indicates that the window is animated, i.e. it opens.

The first 3 window icons are special cases and allow more detailed editing to the window.

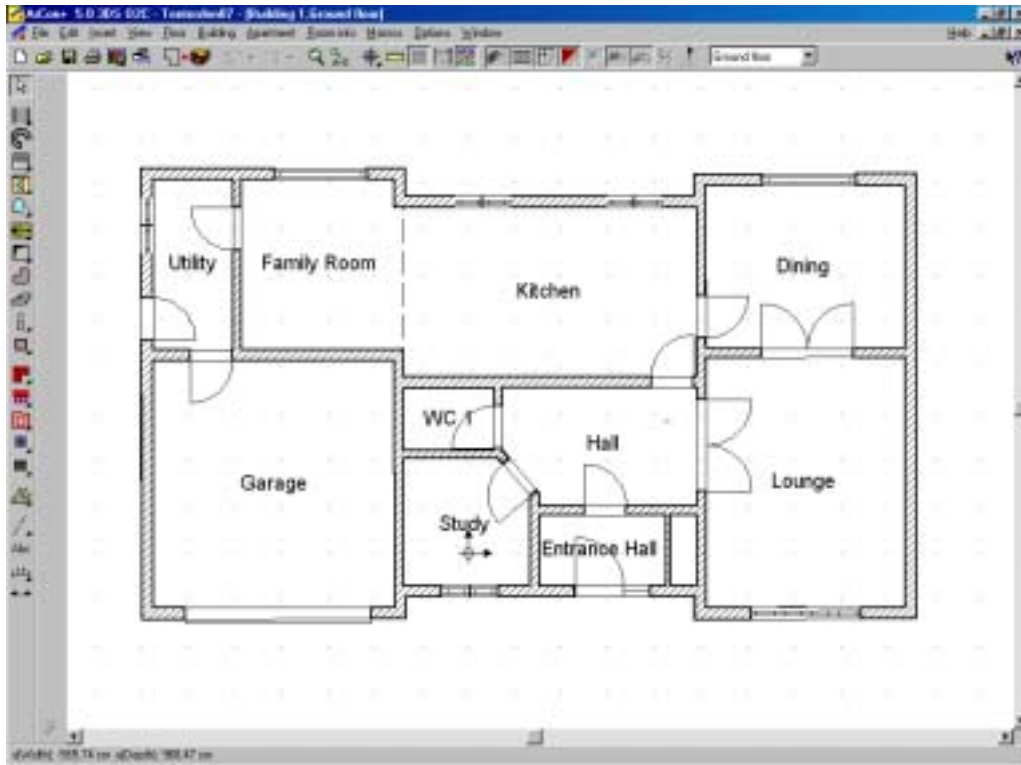
## 6.5 Edit Window size

You can edit a window. To edit a window size before placing it, right click on the window icon. To edit a window that has already been placed, double click on the window symbol in the wall (in 2D mode). Either action will result in the following dialog:



There are several window style dialogs.

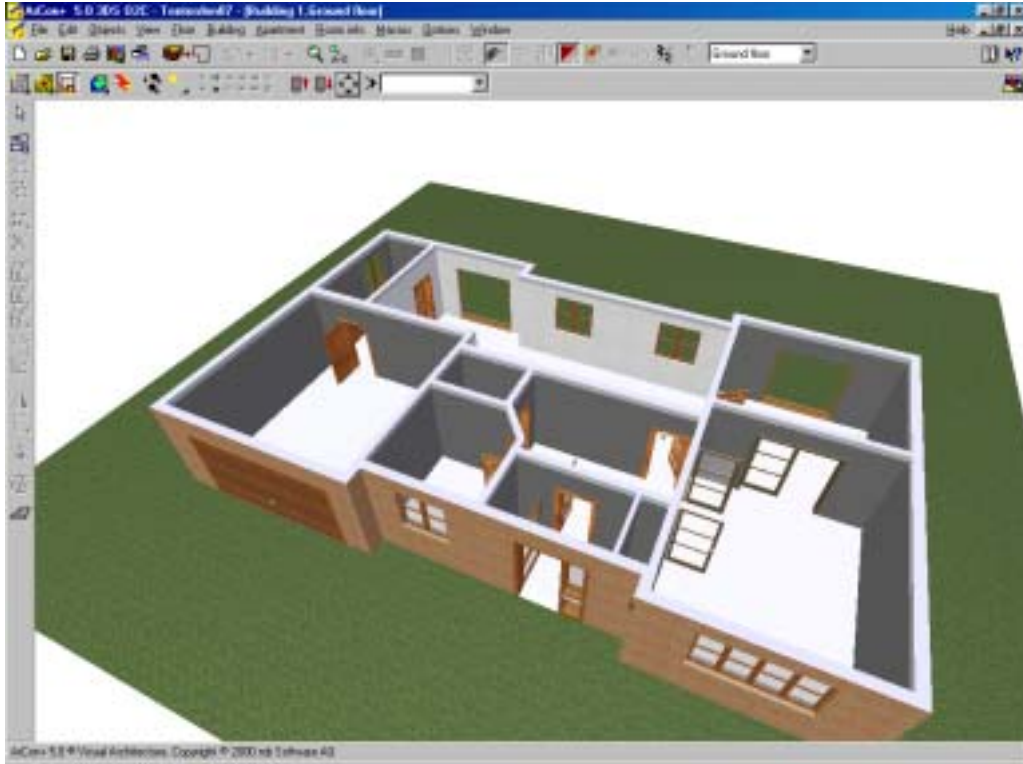
If you want to set your current window settings to your current options, then click on the **Default** button. This saves the values in the ArCon.ini file so that the next time you restart ArCon these will become your current settings.



Note: The above screen shot is taken from ArCon+ 5. ArCon 5 (Standard) users can not show the door swing, as this is only available on ArCon + 5 (and ArCon+ 6.5).

## The ArCon Project

---



### 6.6 Add Stairs

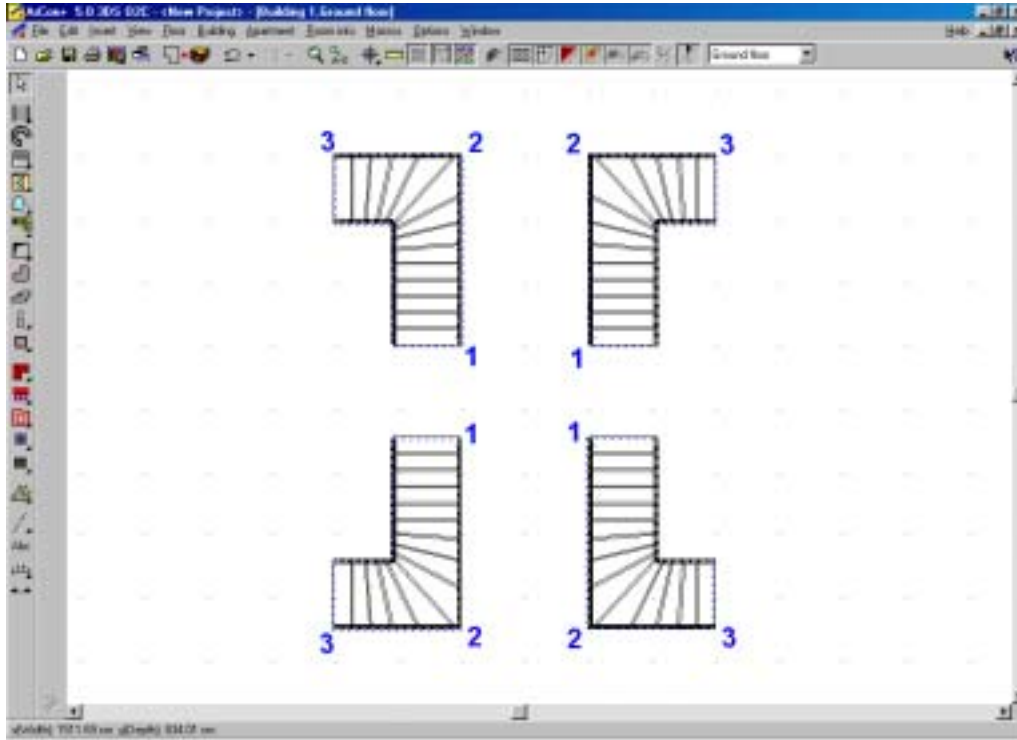
Stairs are added from the stair icons:



The online documentation gives a good description on how to add a stairs. In most cases 3 clicks are required to place your stairs.

### 6.6.1 Stair orientation

The orientation of the stairs can be controlled by the position of the three placement clicks as shown:



The above stairs placements would produce the following stair orientations:



### 6.6.2 Spiral staircase direction

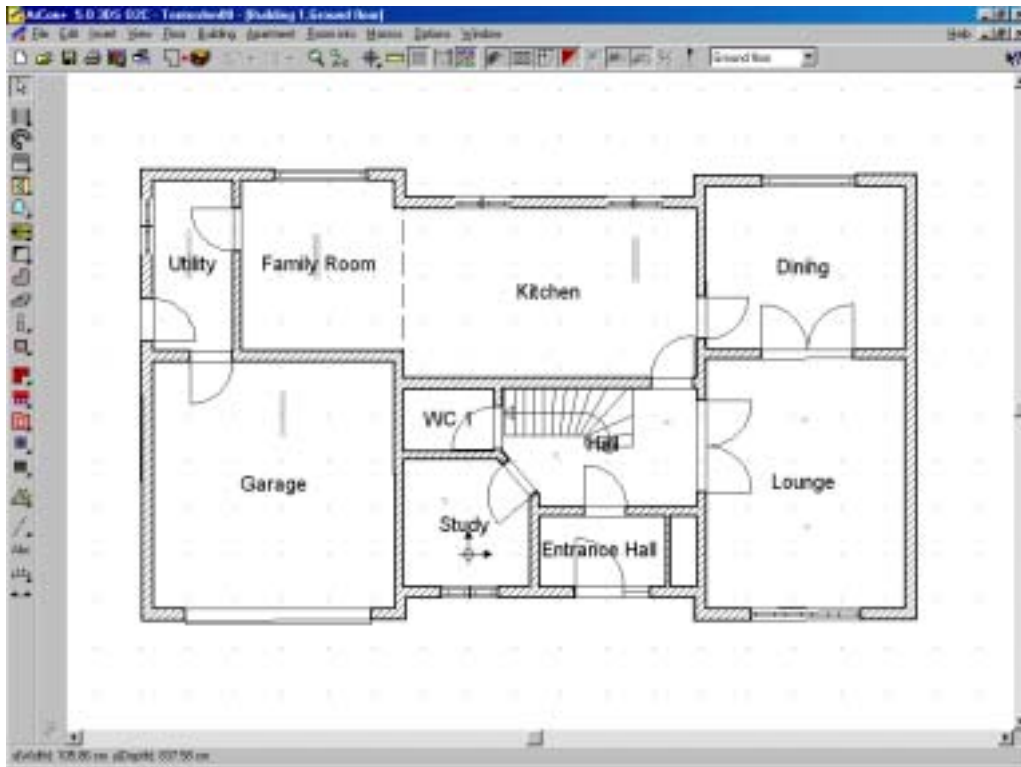
Although the example project does not include a spiral staircase, its worthwhile to mention at this point how the spiral staircase direction is controlled. The Spiral staircase requires the following actions:

8. Click to position
9. Drag the diameter and fix with a click
10. Drag the direction and fix with a click

You can of course then edit the stair radius and other attributes from the Spiral stairs dialog.

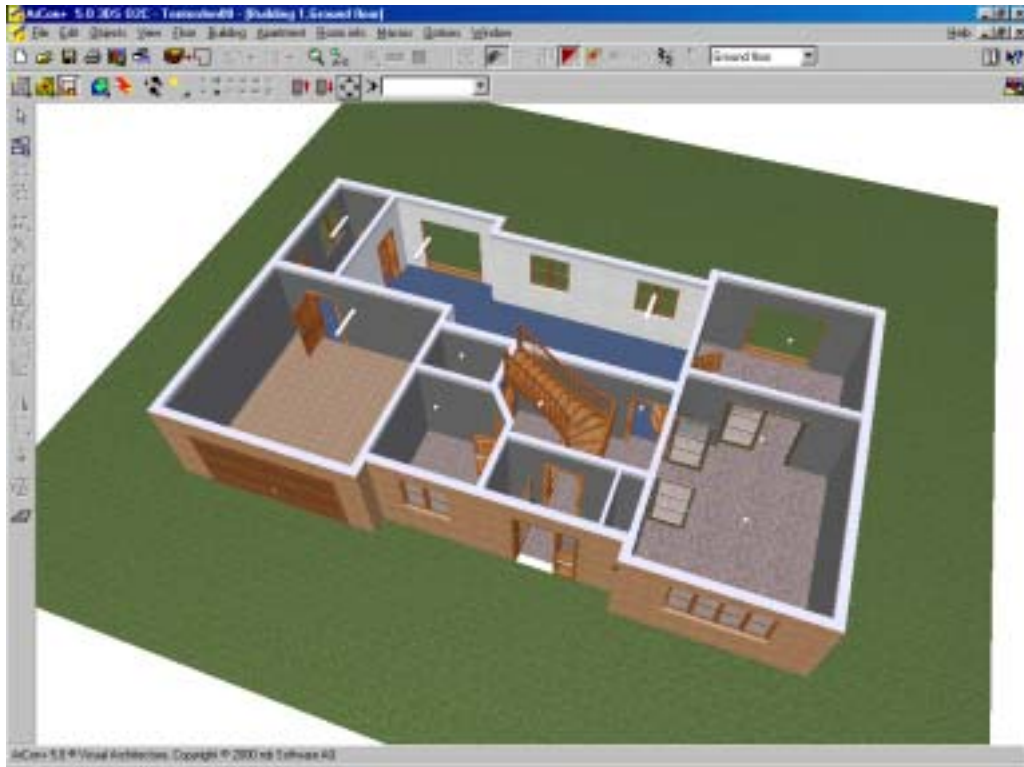


## 6.7 Stairs in 2D Plan



## The ArCon Project

---



## 7 Create Upper floor

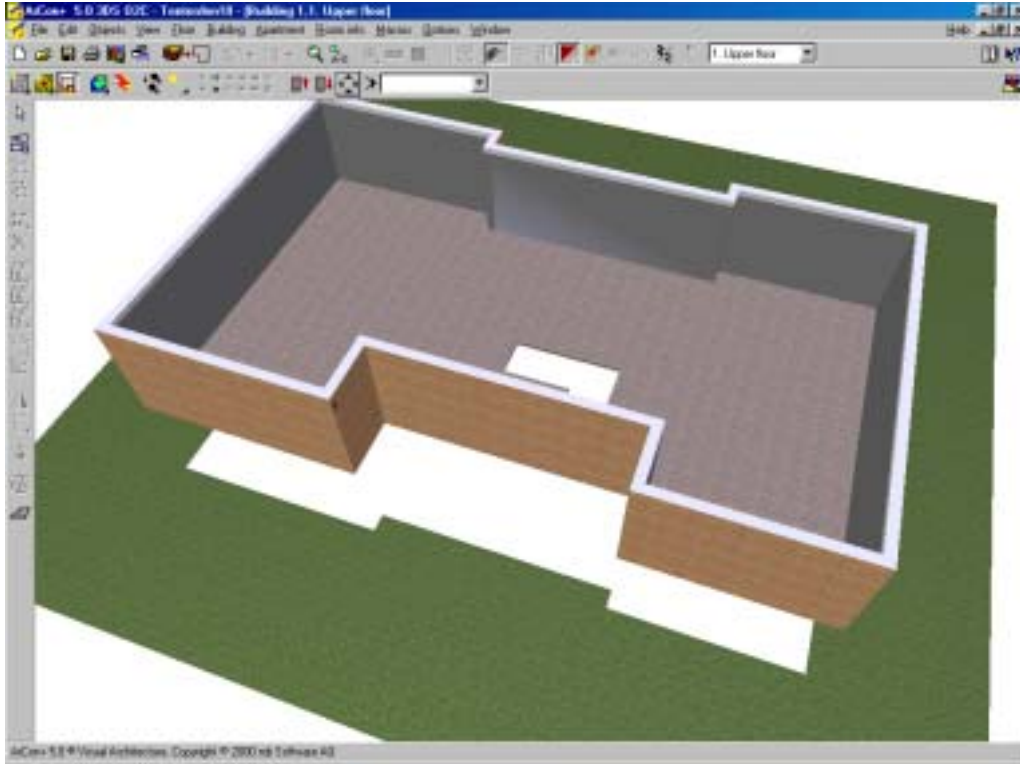
If your external floor plan for your next floor is the same as your ground floor plan then the second floor is created with a single click. Select the menu: **Floor / New Top Floor** to display the following dialog:



You can transfer as much detail as you wish from your existing floor plan. More often than not, you will just want to transfer the external floor plan and the windows. If your design uses a similar floor plan on both, floors, you could transfer the entire floor plan and then delete the unwanted detail. After your selection, clicking on OK will automatically generate your next floor:

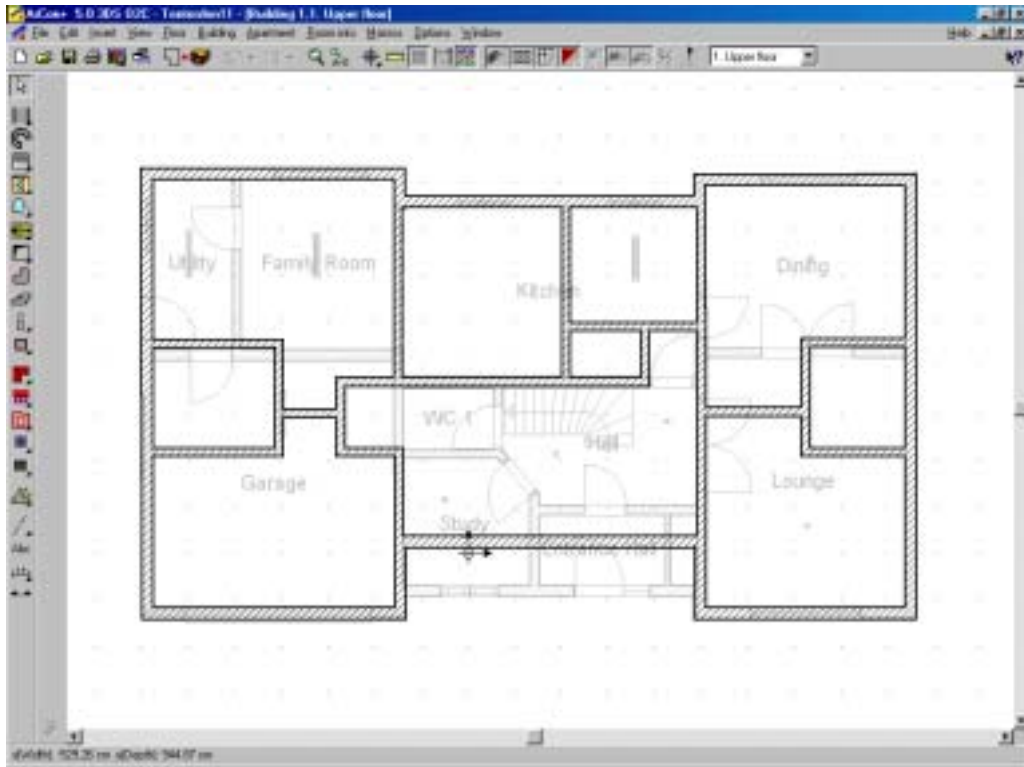
## The ArCon Project

---



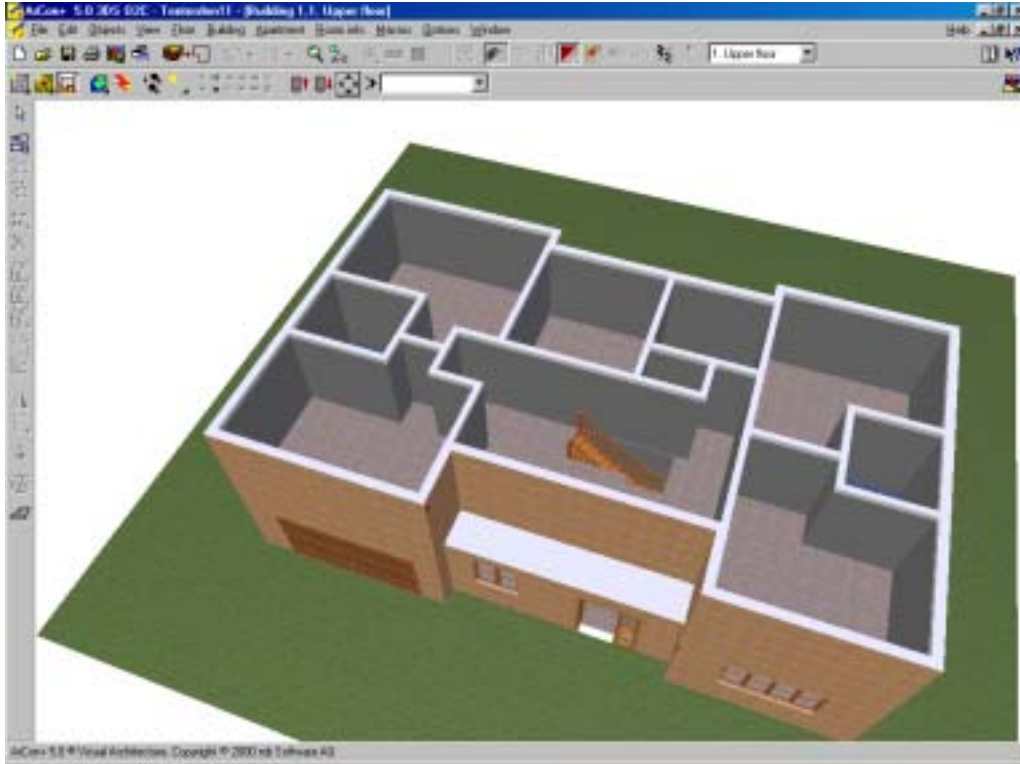
Note that the above image only shows the second floor, as I have chosen to display only the floor that I am working on. This is controlled from the menu **Floors / Visible Floors...**

You should then add / edit your second floor walls exactly as you did for the ground floor. Note that displaying the ground floor does help you to position your second floor walls, doors and windows.



## The ArCon Project

---

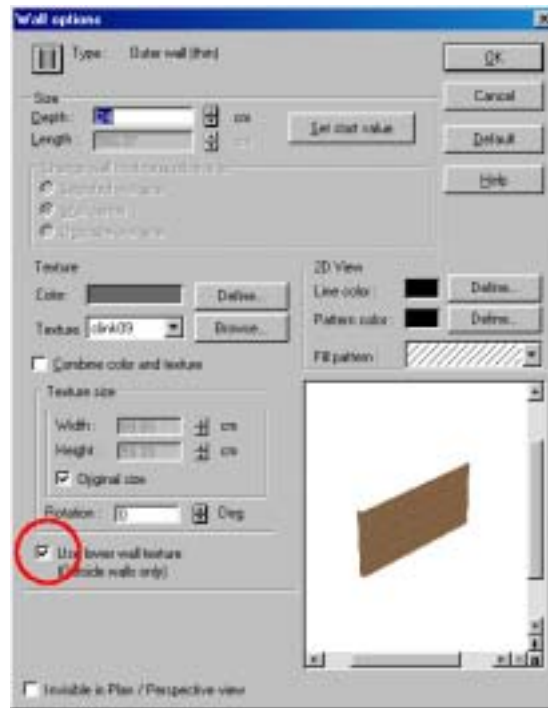


### 7.1.1 Different Upper Floor Wall Texture

Our example project uses a brick texture on both floors. What if I only wanted a brick texture on the lower floor and a different finish on the second floor?



On the second floor plan, double click on the outside wall surface and the following dialog displays:



Here, you can select / deselect that the upper floor uses the same texture as the lower floor. Deselect this. In the Texture field you can then select a new texture and this wall section is now a different texture.



Our tutorial project however uses a single texture throughout.

### 7.2 Add Doors

Add the doors to second floor using the same method as the ground floor.

### 7.3 Add Windows

Add the windows to second floor using the same method as the ground floor. If you want to ensure that your windows are placed in the same position above the windows on the ground floor, then you should select the **Floors – Visible Floors** menu, which will activate the Floors dialog:





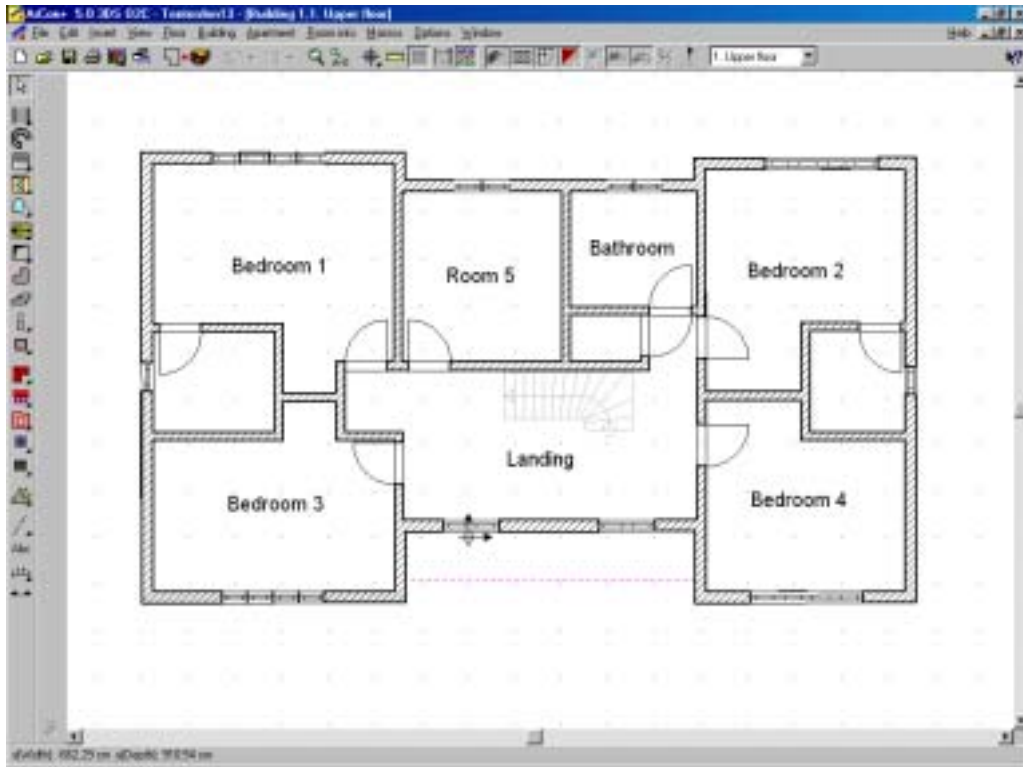
Select the floors that you want to display. Note that although you can now see more than one floor, you can only edit the current floor. The current floor can be switched using the drop down list below the menu bar:

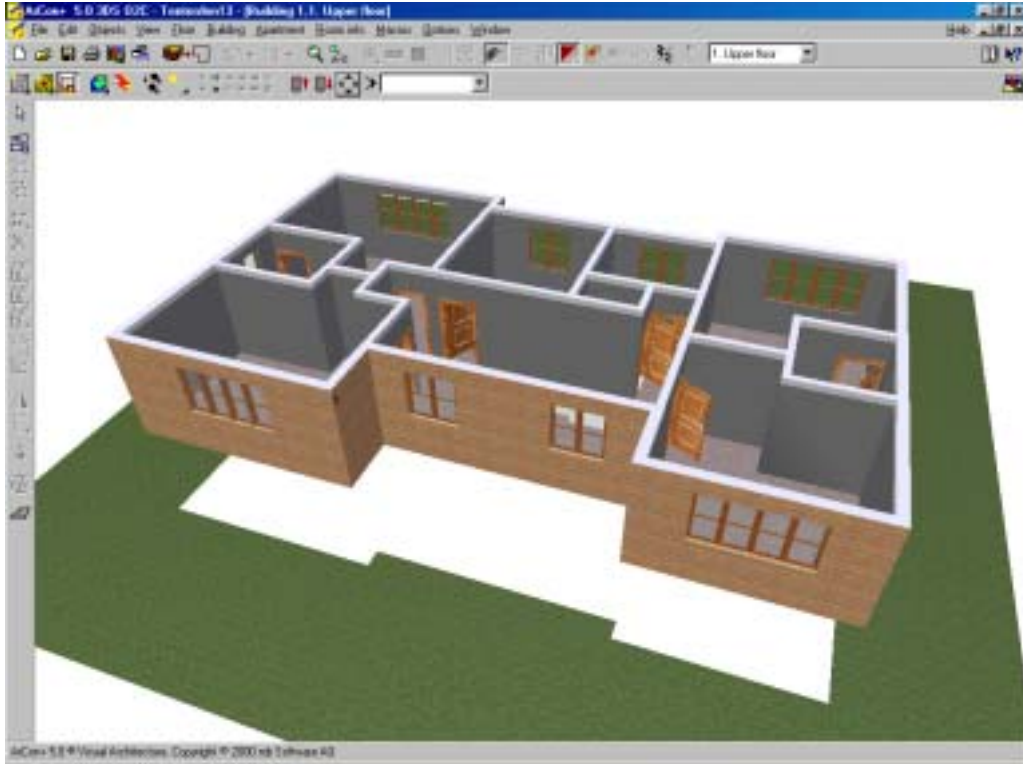


Although you can not edit any of the other floors you can snap to lines and objects on another floor.

## The ArCon Project

---





## 8 Add Roof

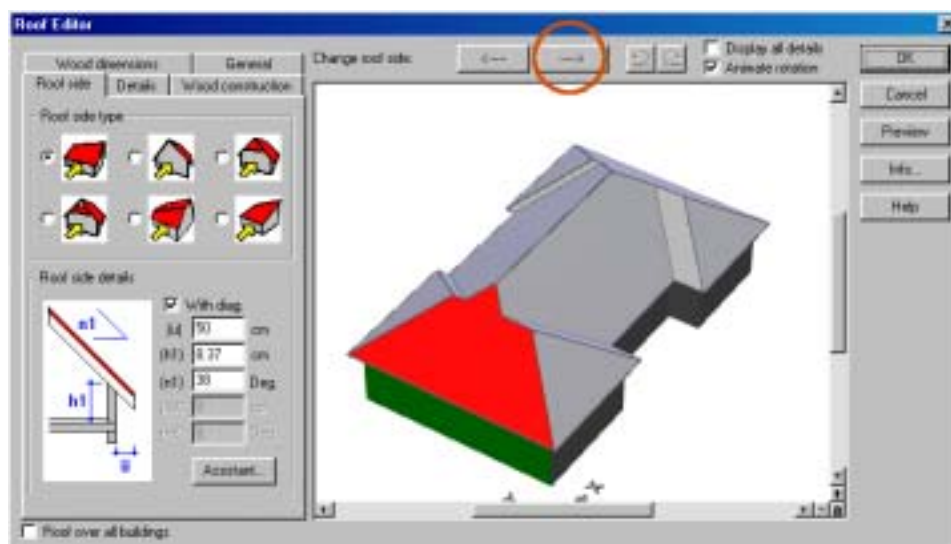
The roof requires a floor, so if we were to add a roof to our existing two storey building we would end up with a bungalow. **To add a roof to a two storey building you must add a third floor.** Think of it, the attic has a floor. So add a third floor and call it Attic. Ensure that your current floor is the Attic. Then drag out the roof icons:



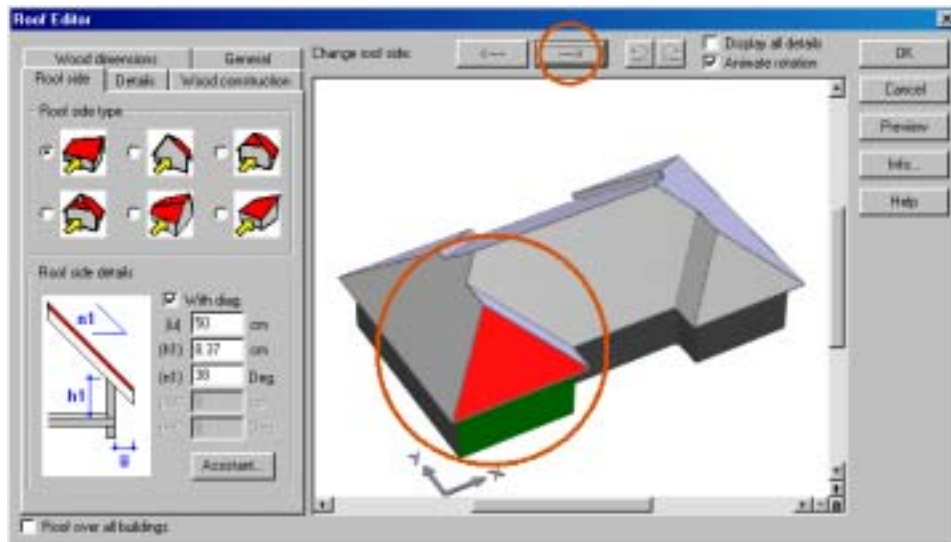
We are going to use the Free roof type. We now must select the input method. These icons appear in the second vertical bar when you select a roof:



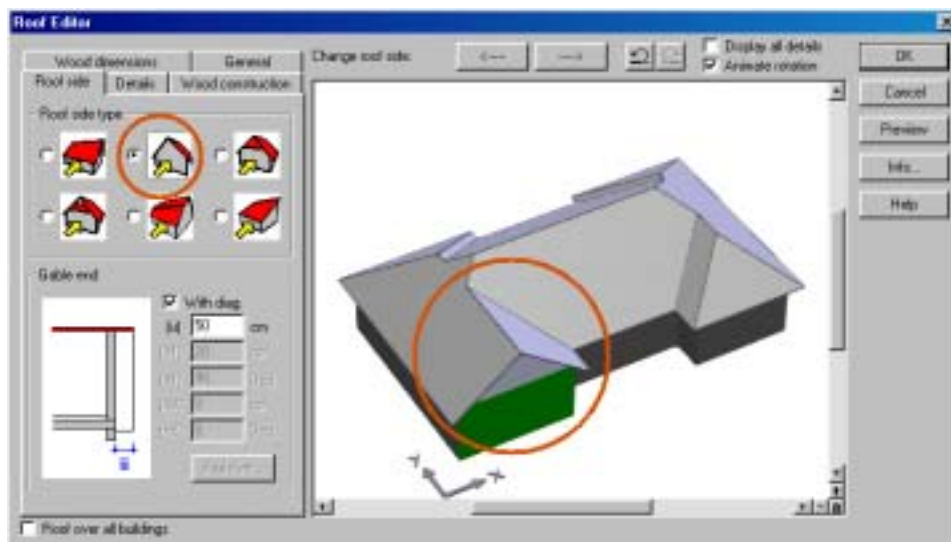
There are 3 options. You should select the Automatic option to see what ArCon thinks your roof should look like. Click anywhere on your wall and you will then be presented with the **Roof Editor** dialog:



You will notice that each roof section is indicated in red. Any changes made in the Roof Editor will be applied to that section. To select another section, click on the left or right arrows at the top. We want our roof to have gable ends, so rotate the roof until one of the front ends is indicated.



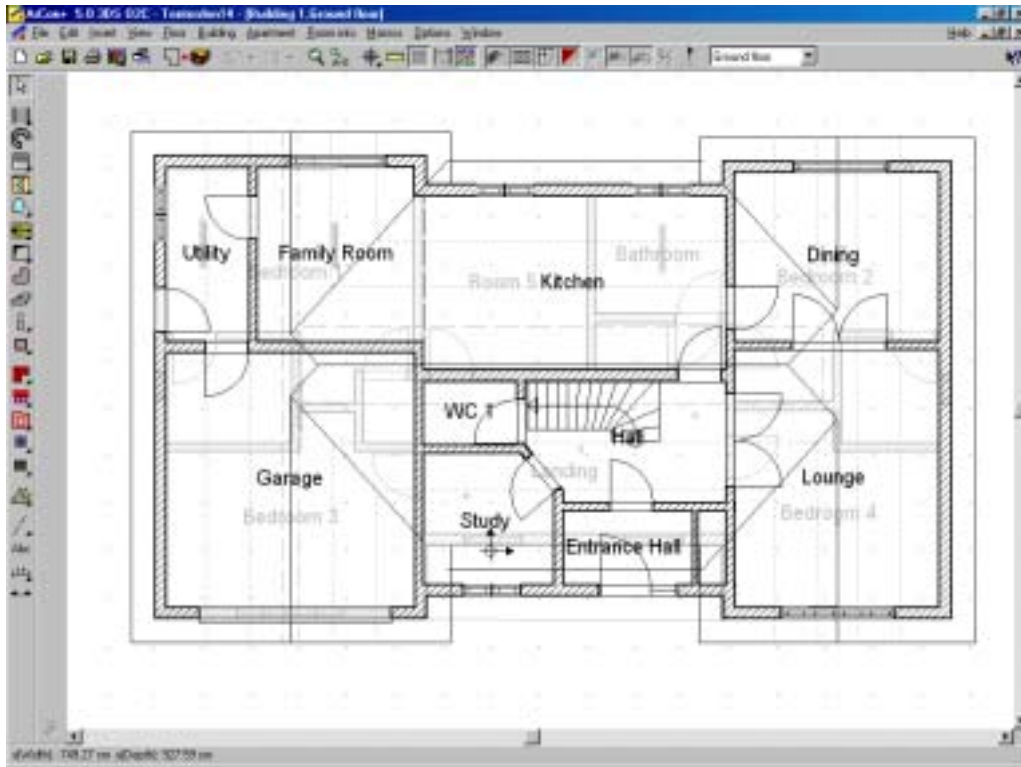
Then select the Roof side type and the preview will change to reflect your choice.



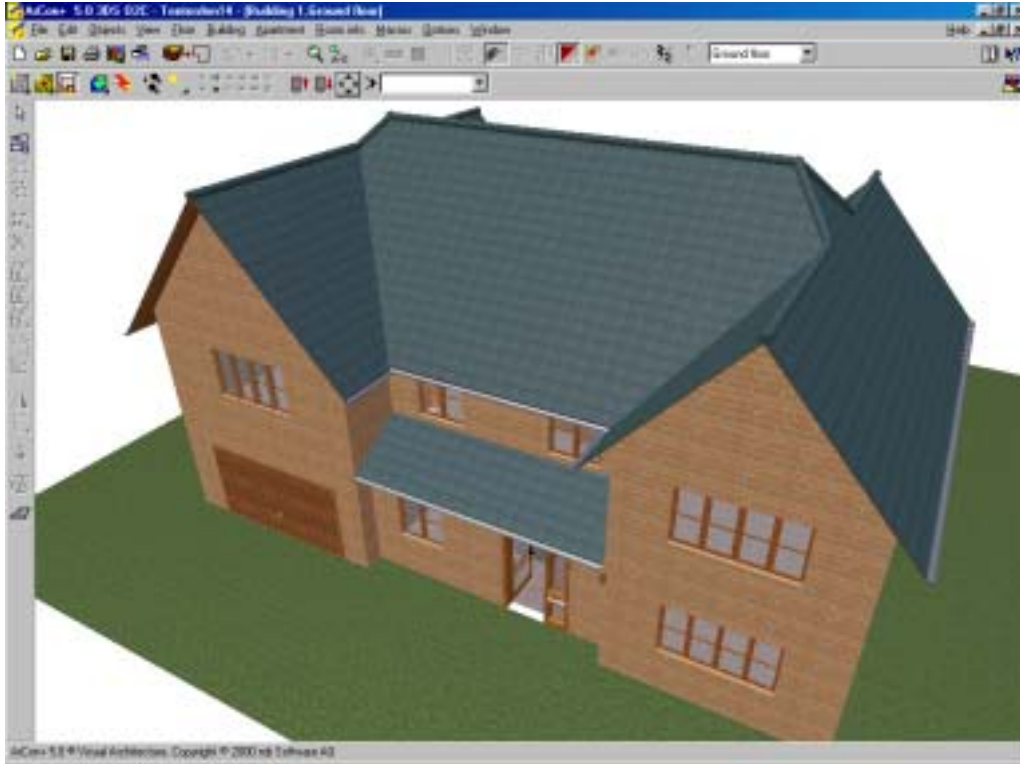
Repeat for each of the gable ends that we require. You can change the overhang and pitch for each roof section in the same way.

## The ArCon Project

---



The following image shows the roof with a tile texture added. Simply drag any texture from the Texture catalogue onto the roof.



Most roof edits can be undone with the Undo button, but sometimes its easier to start from scratch, so its always a good time to save your project went embarking on a roof design.

8.1 What do the lines on the roof mean?

8.2 Can't select the roof?

Are you on the correct floor? You can only select a roof if you are on the floor with the roof.

Is the roof selectable? **Ctrl + Spacebar** will show you the Snap / selection dialog. On the Selectable elements tab, ensure that the roof is enabled.

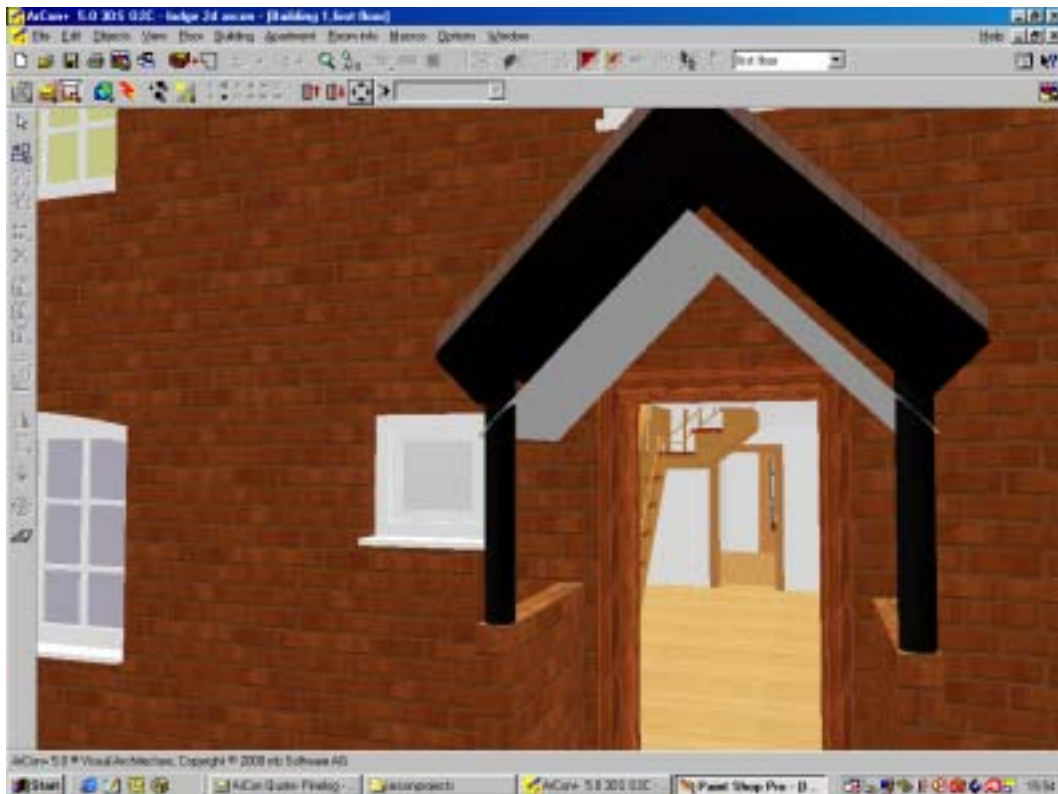
8.3 Is the roof structure a good design?

No! Its close, but the roof structure offered is for visualisation use only. There is an add-on Roof Designer being developed (See our web site for more details).

## 8.4 Roof Problems

### 8.4.1 Why do I see grey panels below my roof structure

These panels actually represent the interior cladding of the roof. While this is useful to be seen from an interior view, it can upset an external view. The following image shows the effect when using a roof on a porch:

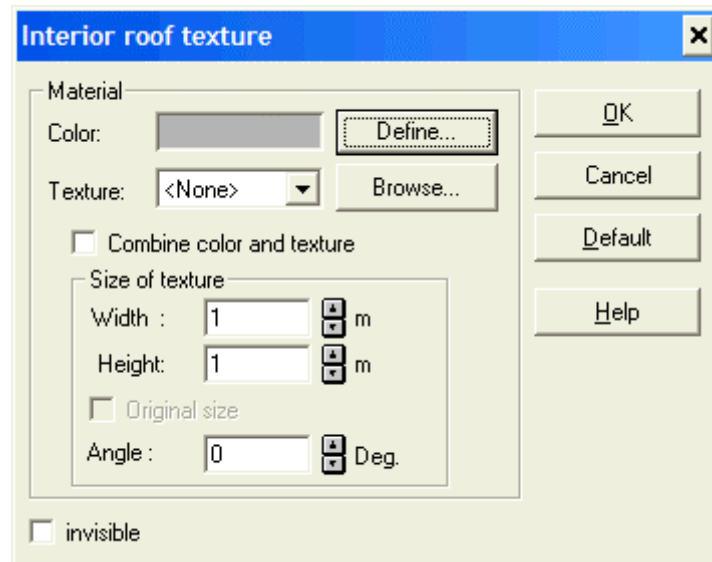


This is the porch roof view with the interior textures showing.

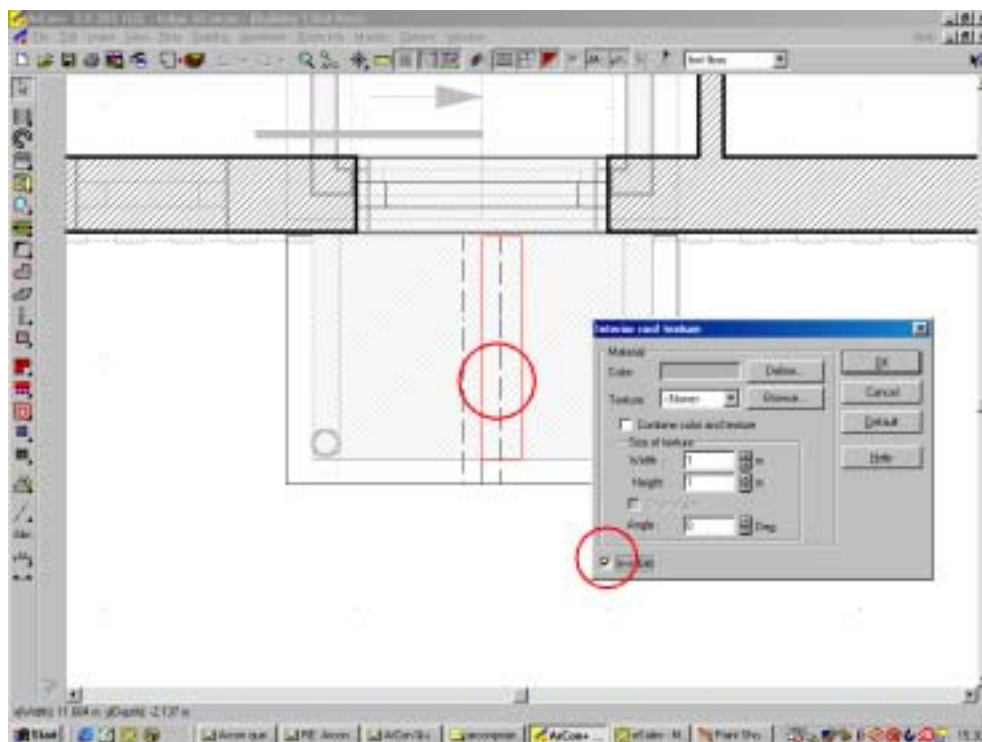
The grey panels are not required. To remove these:

1. Enter Construction mode.
2. Click on the roof section until you are able to select the Interior texture section. The roof section will highlight in red. (Be sure not to confuse this with the roof itself, which is identified as select when the roof polygon marks are indicated). This may take several attempts to select.
3. Double click on this section to activate the Interior roof texture dialog.





4. Select the Invisible option
5. Select OK
6. Enter Design mode.



## The ArCon Project

---

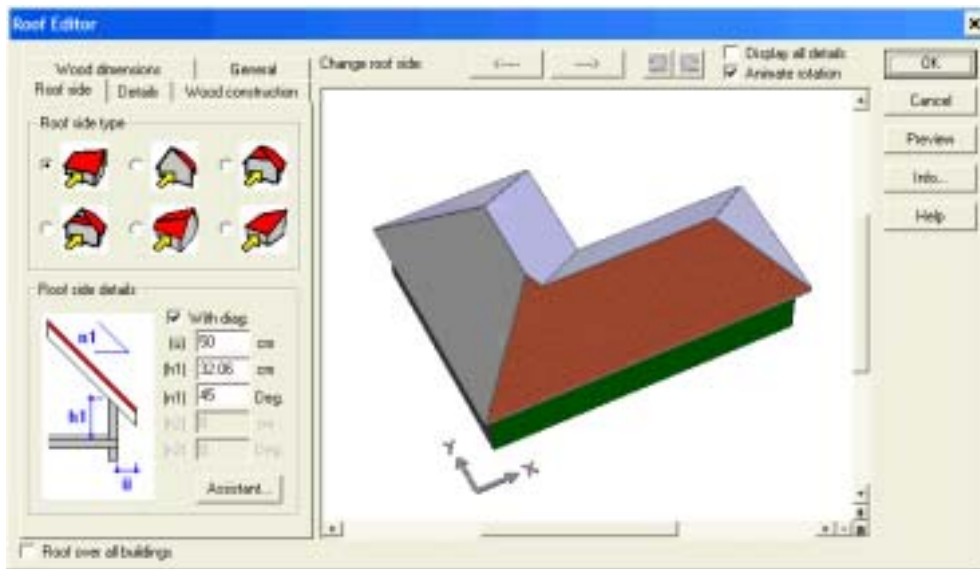
Note that the roof may exist on another floor, other than the one that you are current, so if you are not able to select the roof, try the next floor.

The above example required 4 interior texture panels to be selected and to be set as invisible.



This is the porch roof view with the interior textures set to invisible.

8.4.2 How can I create a L shape building with 3 gable ends.  
 The roof design will automatically only want to create 2 gable ends as follows:

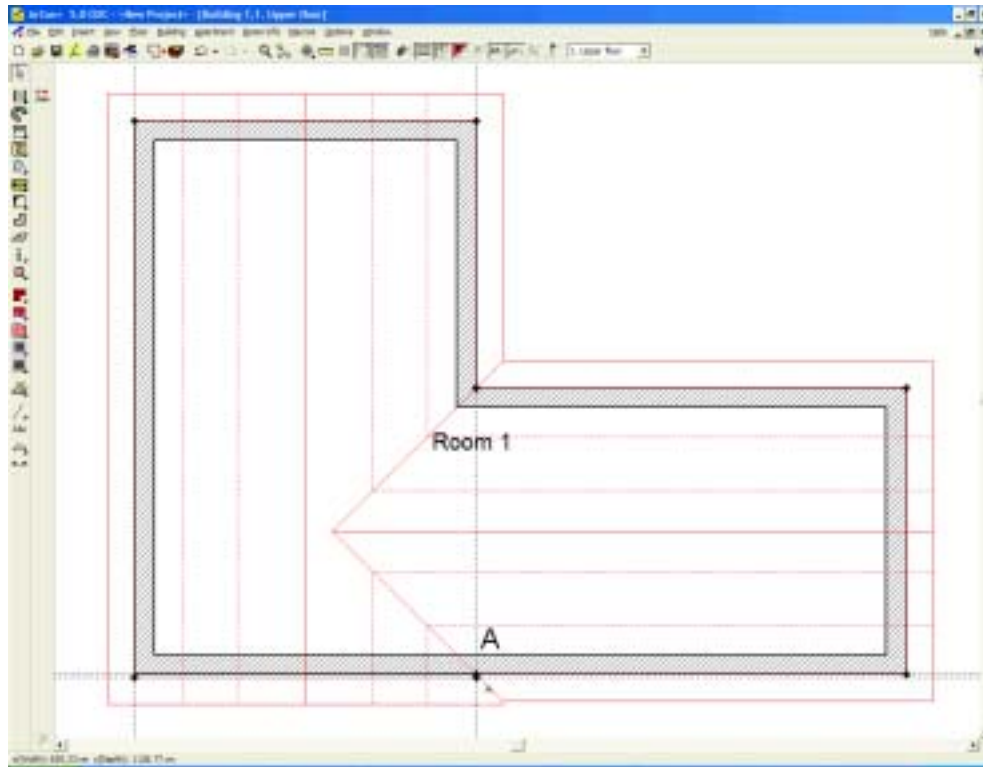


Normally you can not create the 3<sup>rd</sup> gable, but here is how:

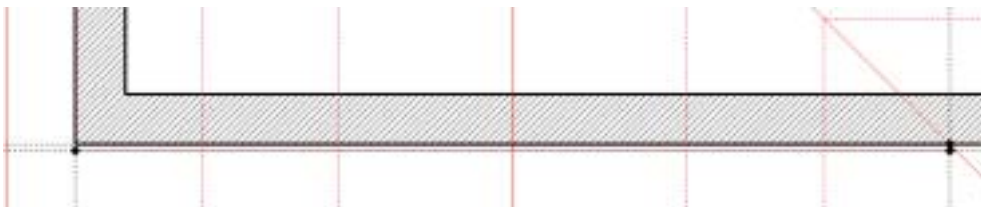
Use the Free Roof type, apply with Roof polygon marks points around the roof. However at point A (see below) create a step of maybe 5cm to indicate to the roof editor that you wish to break the roof line here.

## The ArCon Project

---

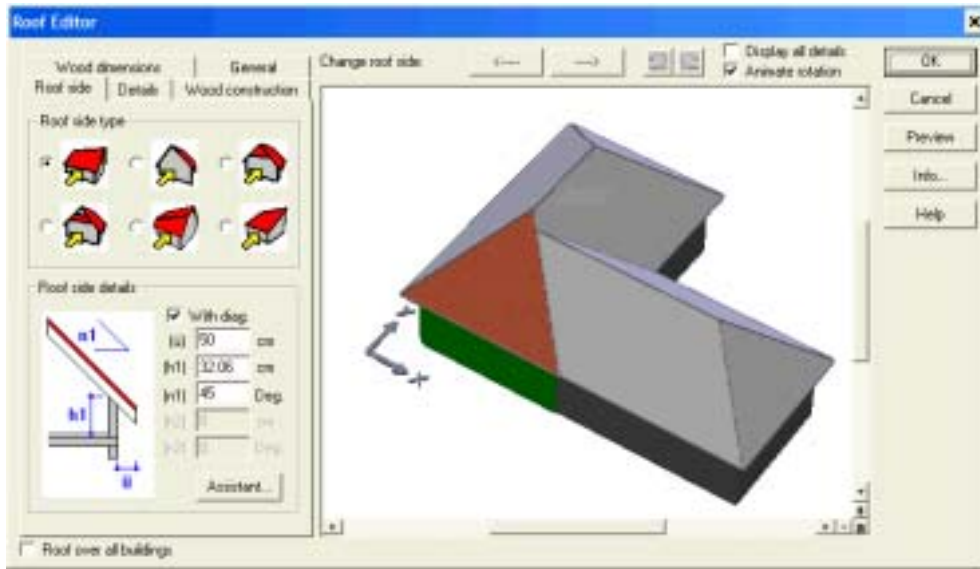


This is the same image, zoomed in:

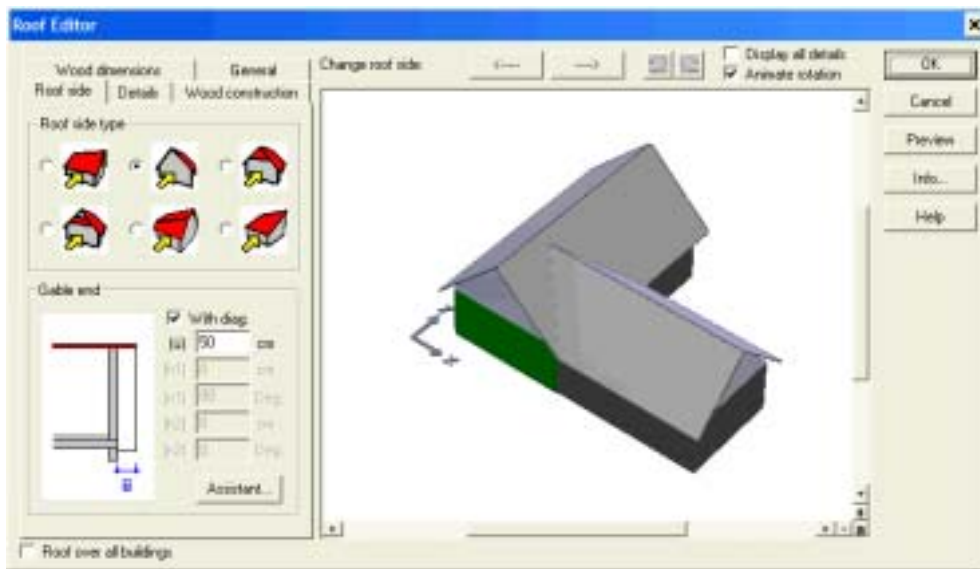


Note the small step at point A where we want the 3<sup>rd</sup> end gable.

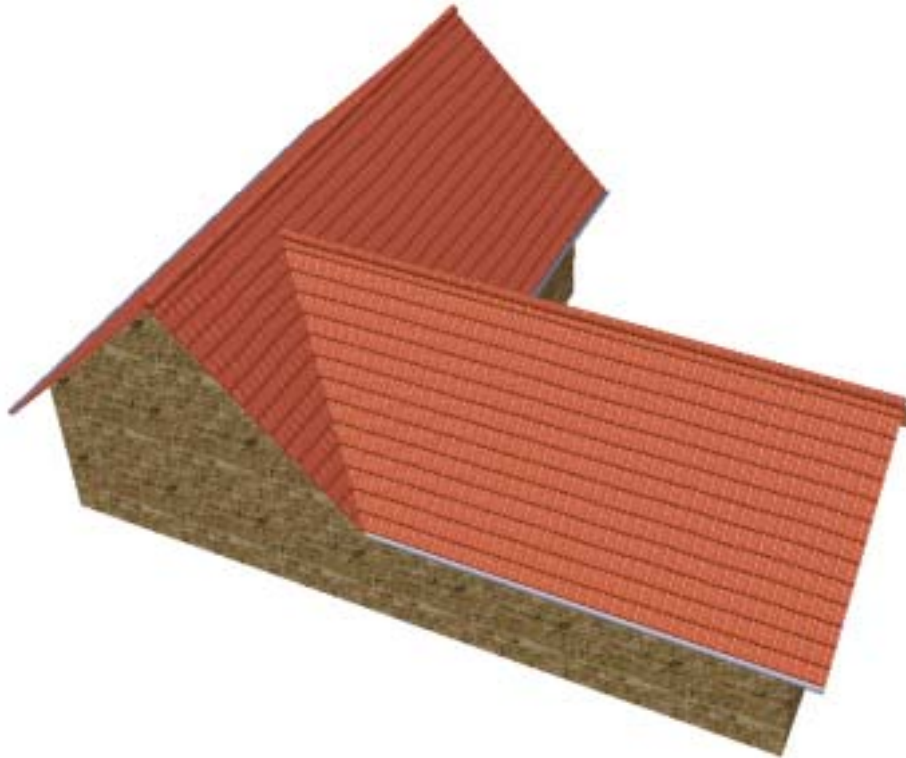
When you complete the polygon the Roof Editor will produce the following:



You can now select the lower end roof section and apply a gable end to it:



This tip can be applied to other roof designs, where you want to 'persuade' the Roof Editor to do something else.

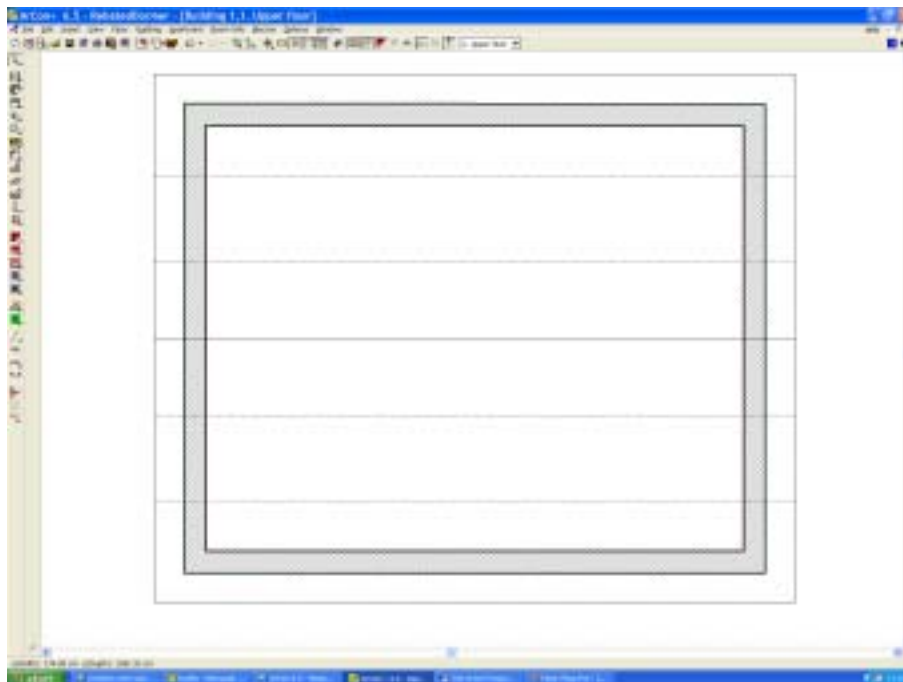


## 8.5 Dormers: How to create a rebated Dormer

If you can not obtain the exact roof dormer position on your roof then try adding a second transparent roof and adding the dormer to the second roof. Here is an example of how to create a 'recessed' Dormer.



This dormer style needs to be set back into the roof, and cannot normally be achieved with ArCon+ 5 or ArCon+ 6.5.  
Create your main roof as normal. We will refer to this a Roof 1.

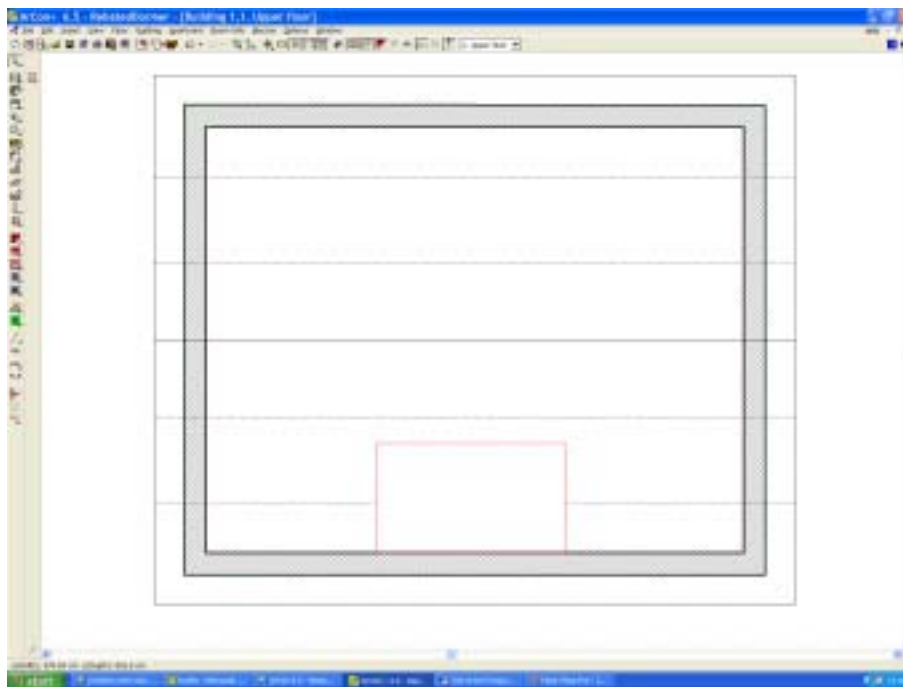


Now add a Roof Terrace, which will be effectively be our 'roof cut out', into which we will 'insert' the Dormer.

Both ArCon+ 5 and ArCon+ 6.5 support the Dormer Roof Terrace type.

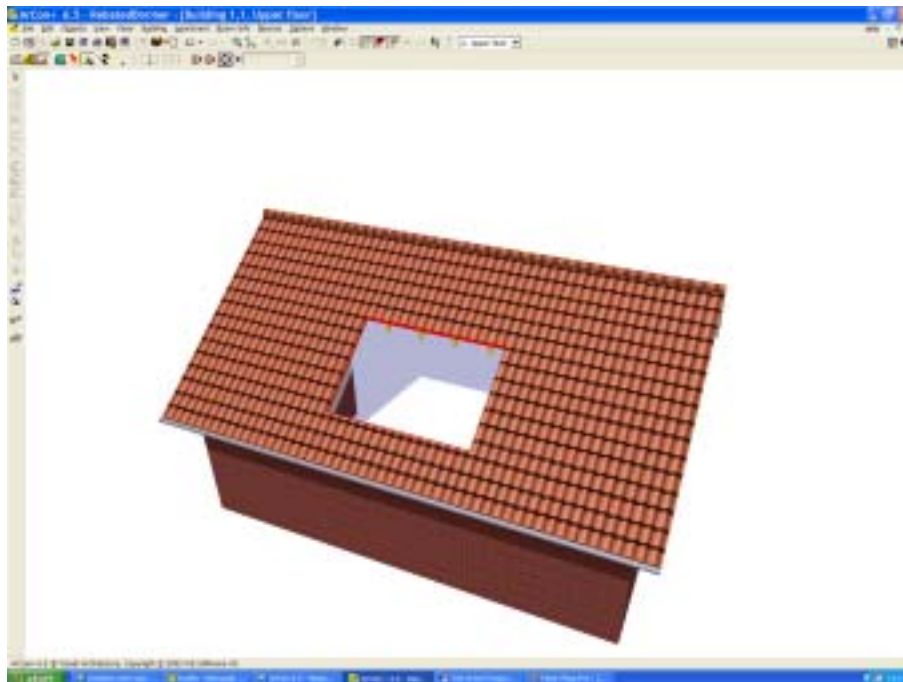
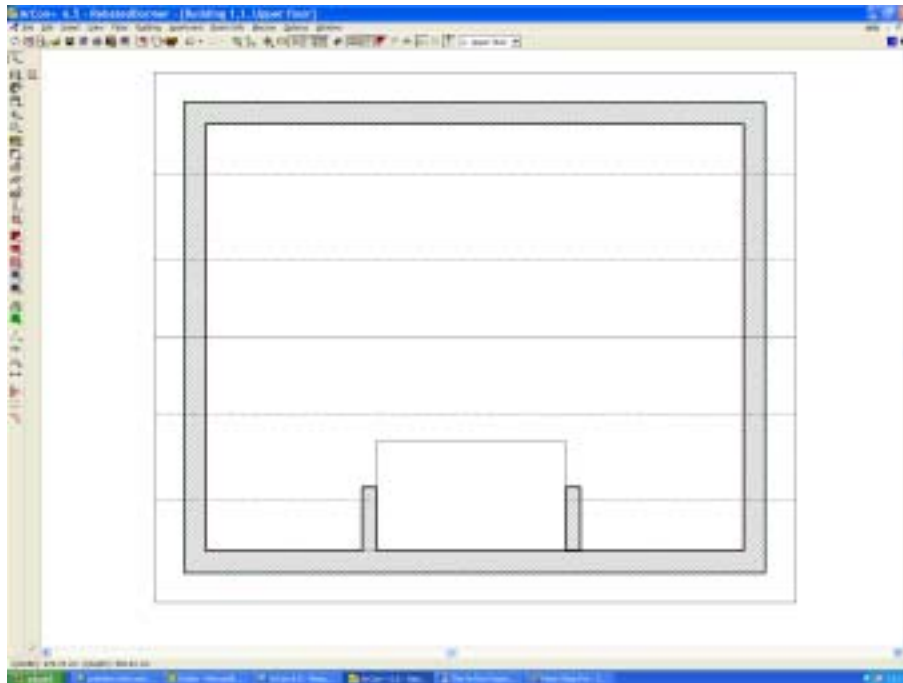
## The ArCon Project

---



Now add the wall sides to your 'cut out'.

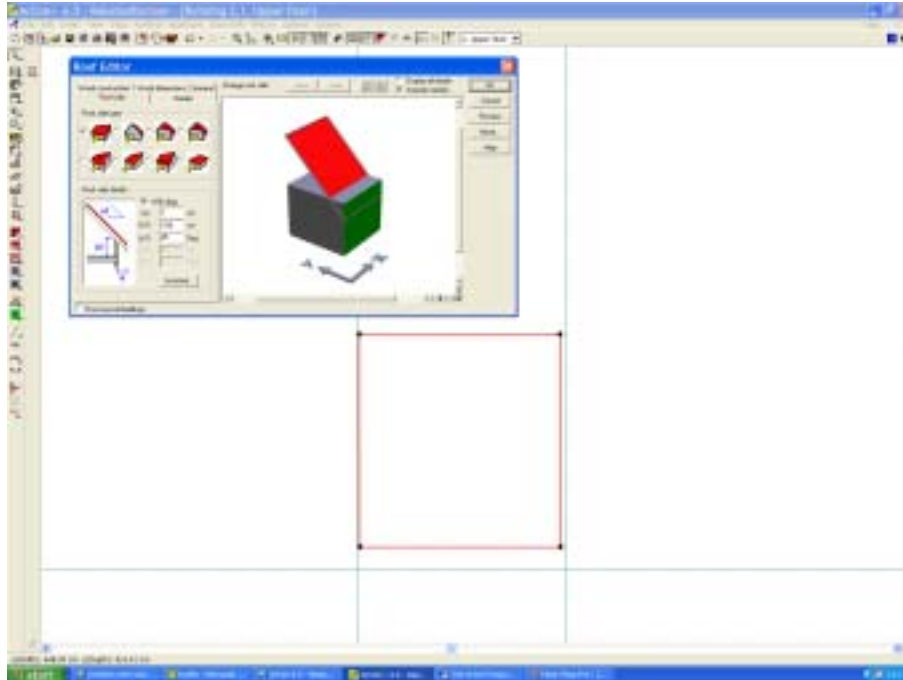




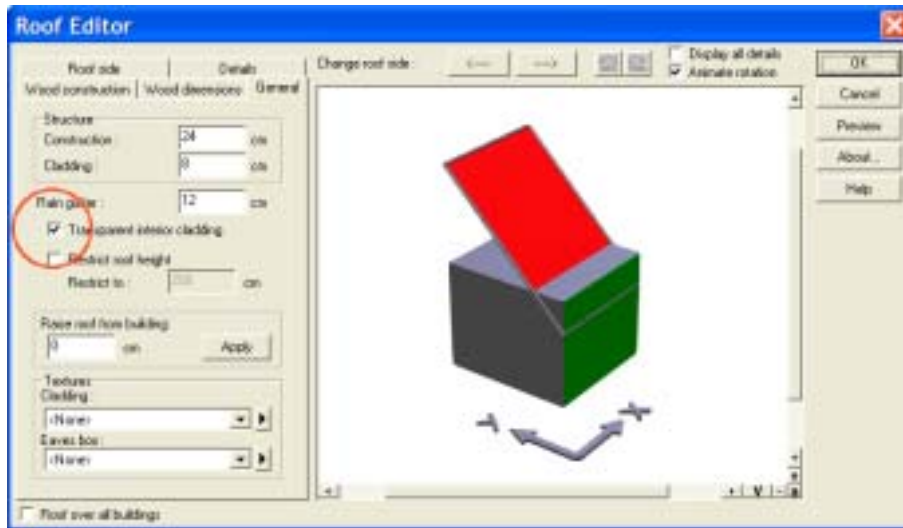
Now create a new building, which we will call Building 2. This second building will exist solely to create a roof section into which we can insert the Dormer, so it doesn't even need any walls. In building 2, create Roof 2 (using the Free Roof type).

## The ArCon Project

---

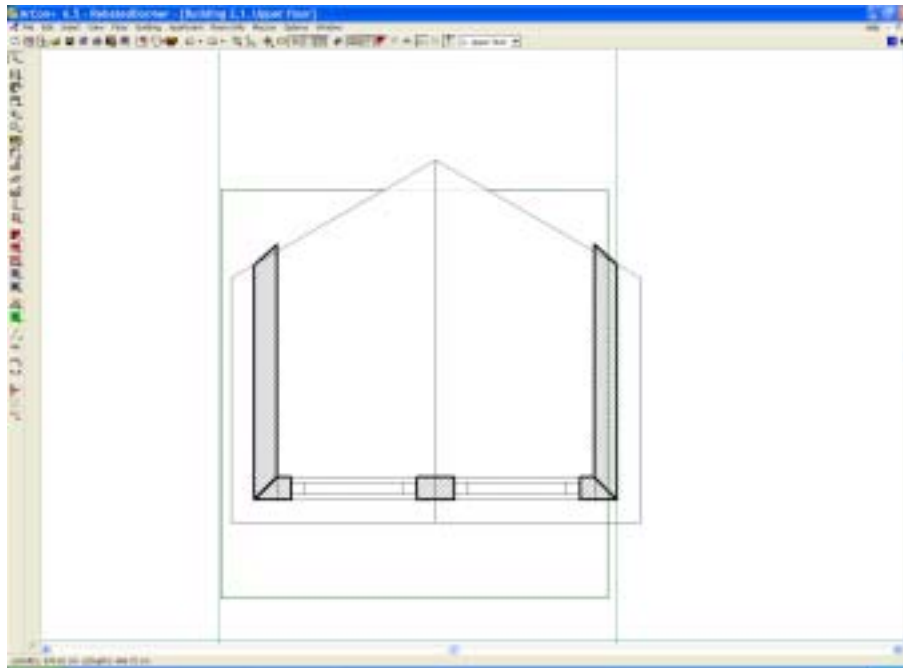


The roof pitch should be set to 45 deg., the remaining 3 roof sides should be set as 'Gable ends'.



Roof 2 is only to act as a support for the Dormer and should therefore be made transparent. Also remove any textures that may be applied to the **Cladding**.

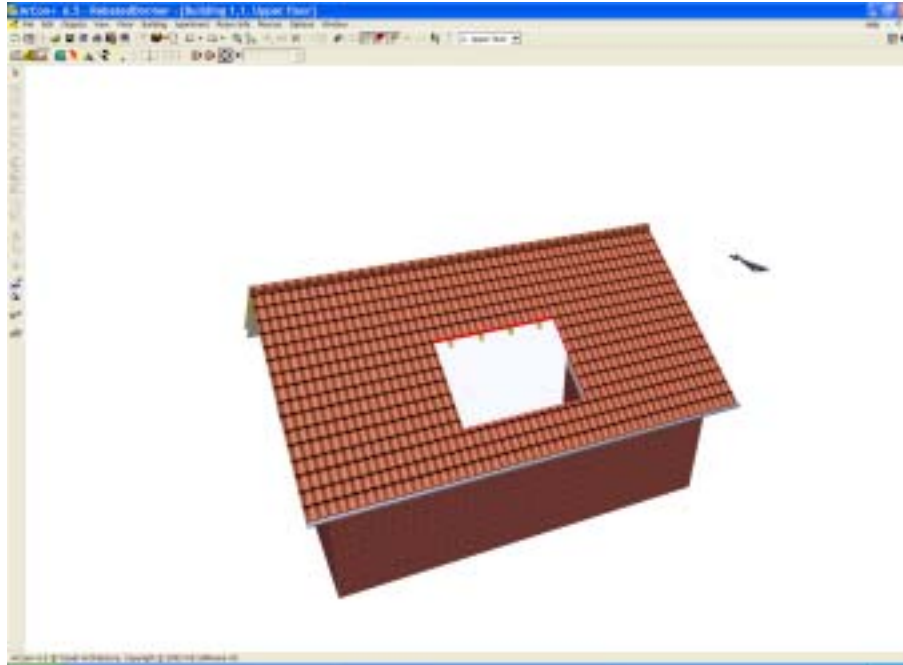
Insert the Dormer into Roof 2. You may have to go back to this step later to ensure the Dormer is aligned to the walls that you inserted into Roof 1.



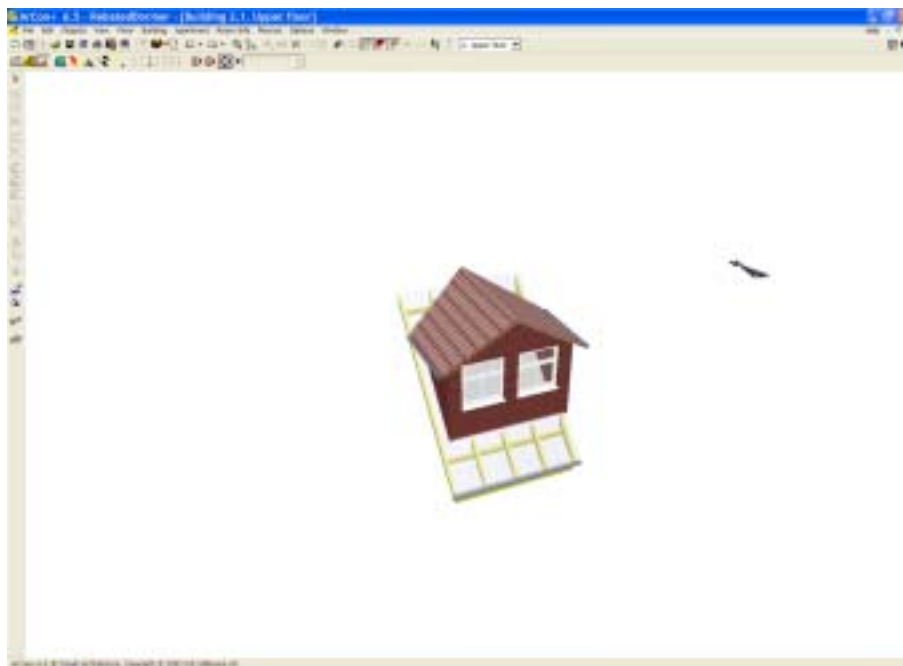
Building 1:

## The ArCon Project

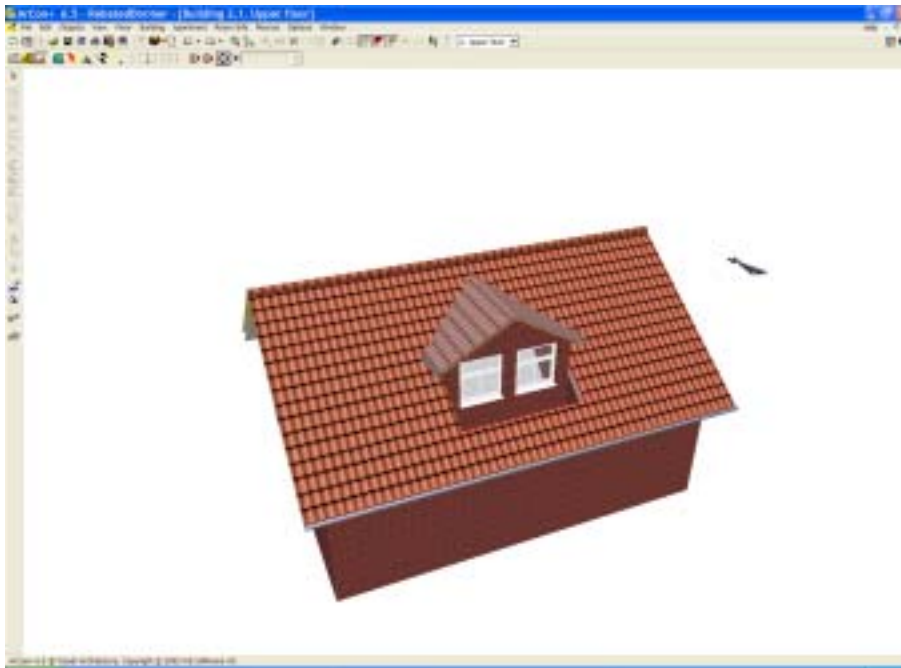
---



Building 2:



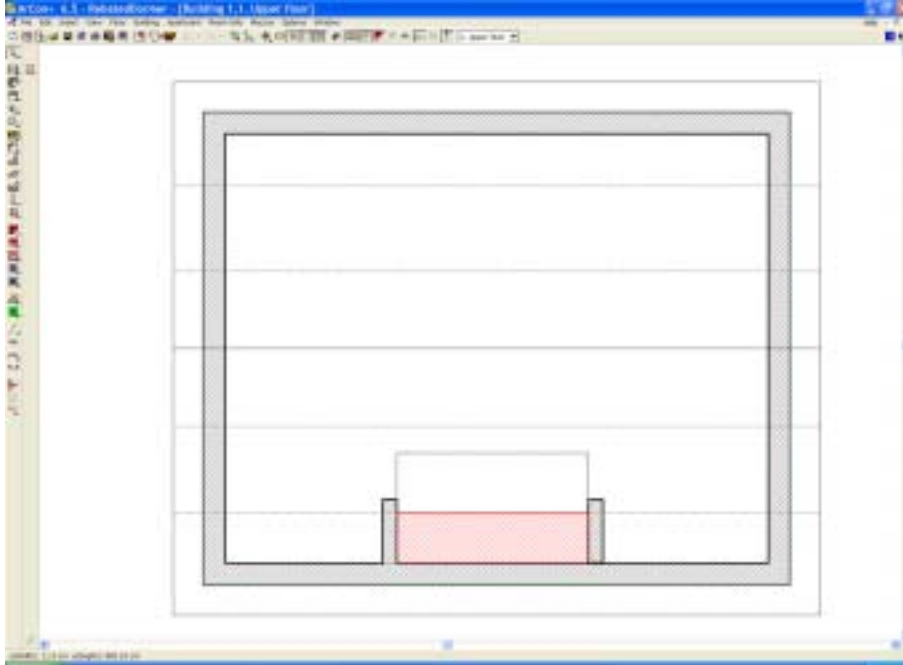
Now enable both building to be viewed:



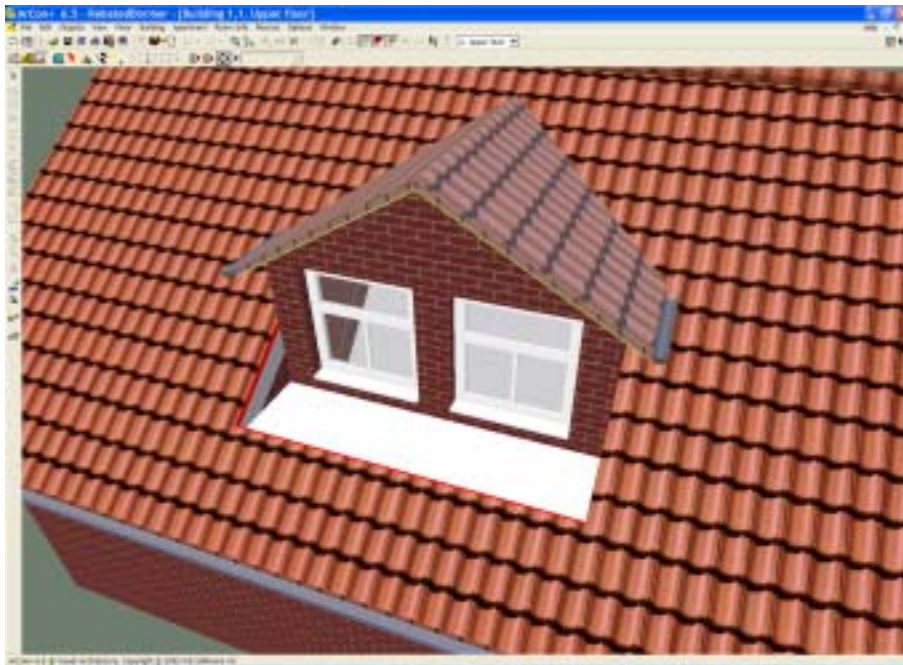
Using the 'Block Editor' add a block to act as the front extended sill of the Dormer.

## The ArCon Project

---



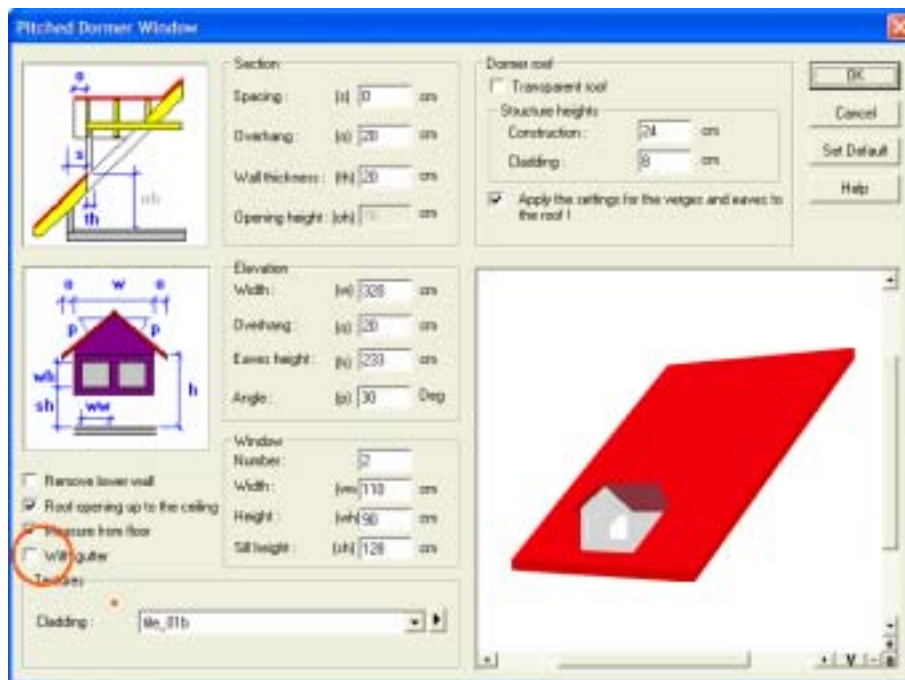
The final Dormer:



This example shows you how using a second 'invisible roof' you can create roof structures, which at first glance may seem too complex for ArCon.

## 8.6 How to create a Dormer with a Roof / gutter break

The default setting for a Dormer is so that the roof and gutter exist in front of the Dormer. ArCon 6.5+ allows you to remove the roof section and gutter in front of the Dormer:



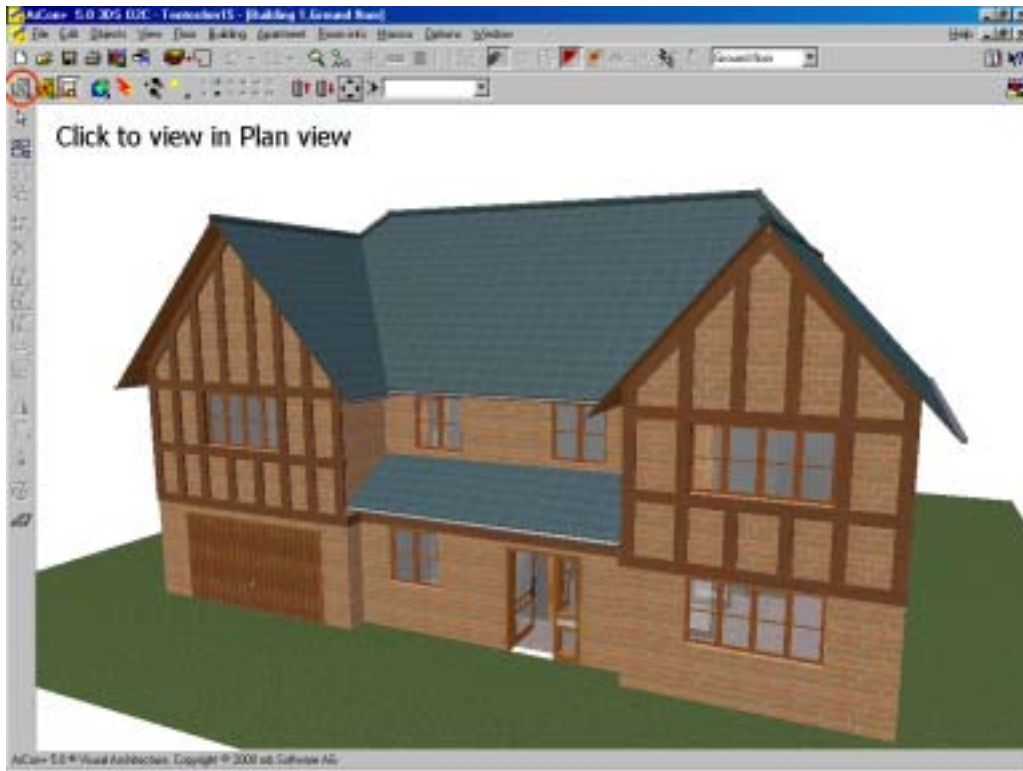
## The ArCon Project

---

There is no simple solution to achieve this with versions prior to ArCon+ 6.5

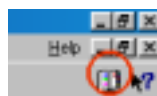


## 9 Add External features



The external timber beams are easily added. The following procedure can be used for any wooden beam, including exposed floor joists.

1. Locate the **Catalog** while in **Design mode**



Click on the Elements / Bars / Rectangular bar, lying object

2. Before you drag this bar object into your project, put your project into a plan view (see above screen shot).

3. Now layout out the bars to form the beam design that you require:



You can if you want simply place the beams directly onto a front elevation view.

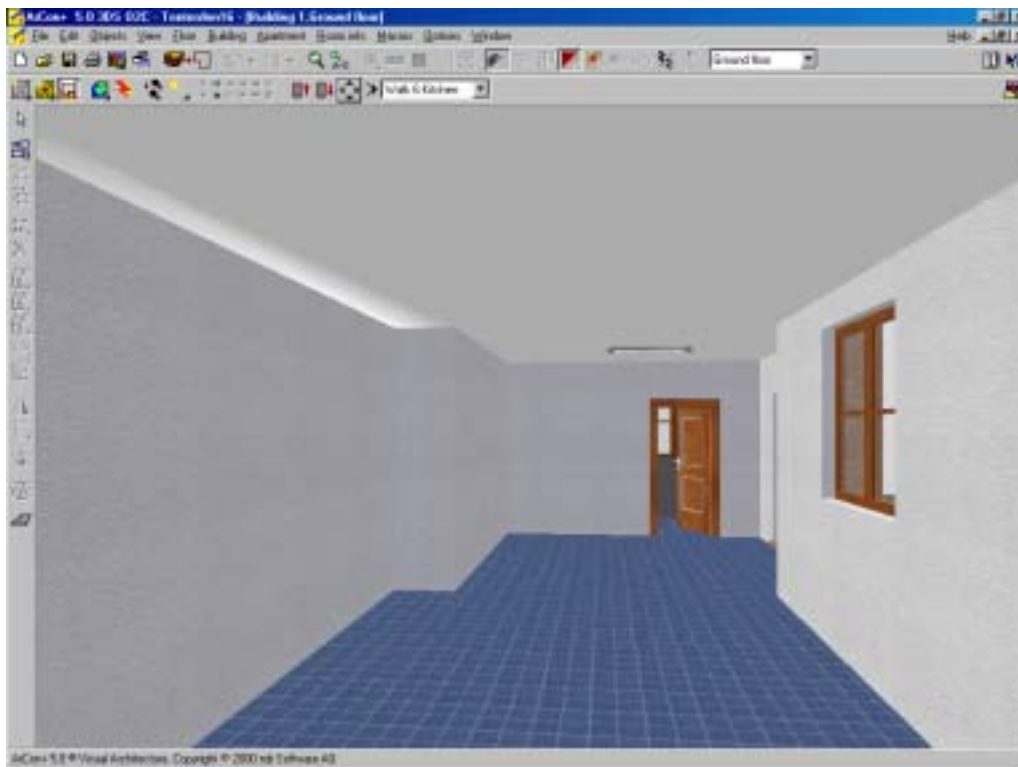
Use the rotate object function to rotate the beams to the required angle.

Select all objects and group them into a single object.

Note that you can now drag a group object back into the object catalog for future use.

## 10 Interior Design

ArCon is an ideal tool for Interior designers concerned with colour and lighting. Persons interested in room layout also use ArCon. This section will concentrate on ArCon at the room level.



### 10.1 Adding furniture

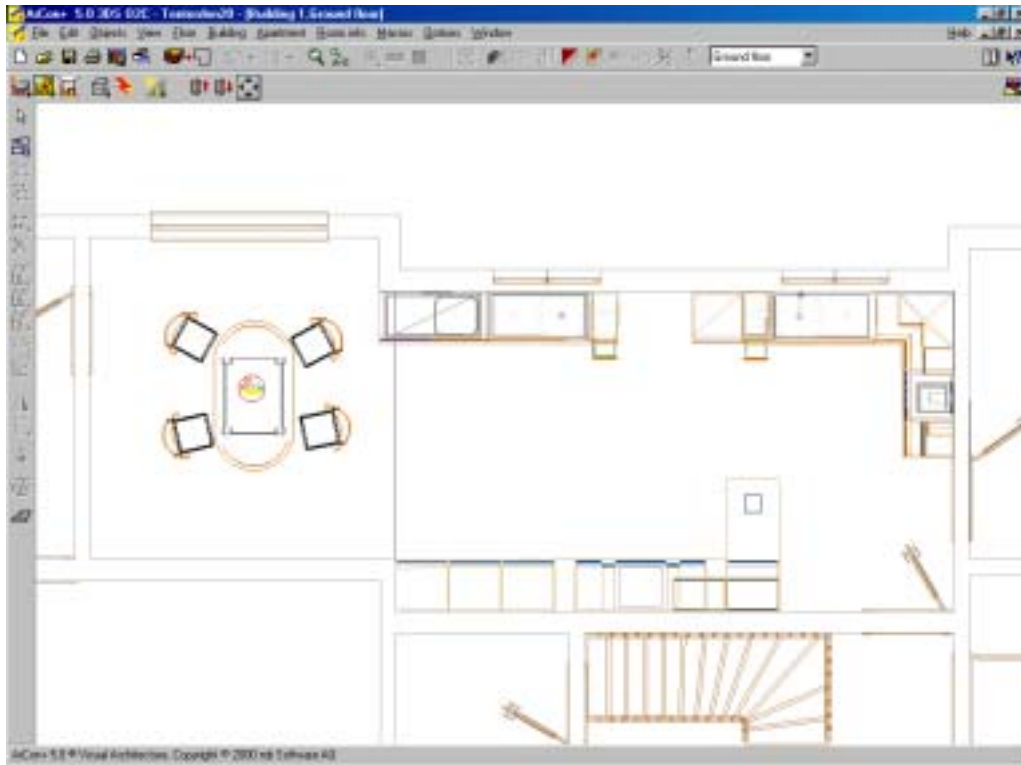
Furniture is simply selected from the object catalogue and dragged into position. Most people try to do this in 3D mode, but you will quickly find that it is easier to do this in the Plan view of 3D mode.

To select a Plan view in 3D mode select the following icon:

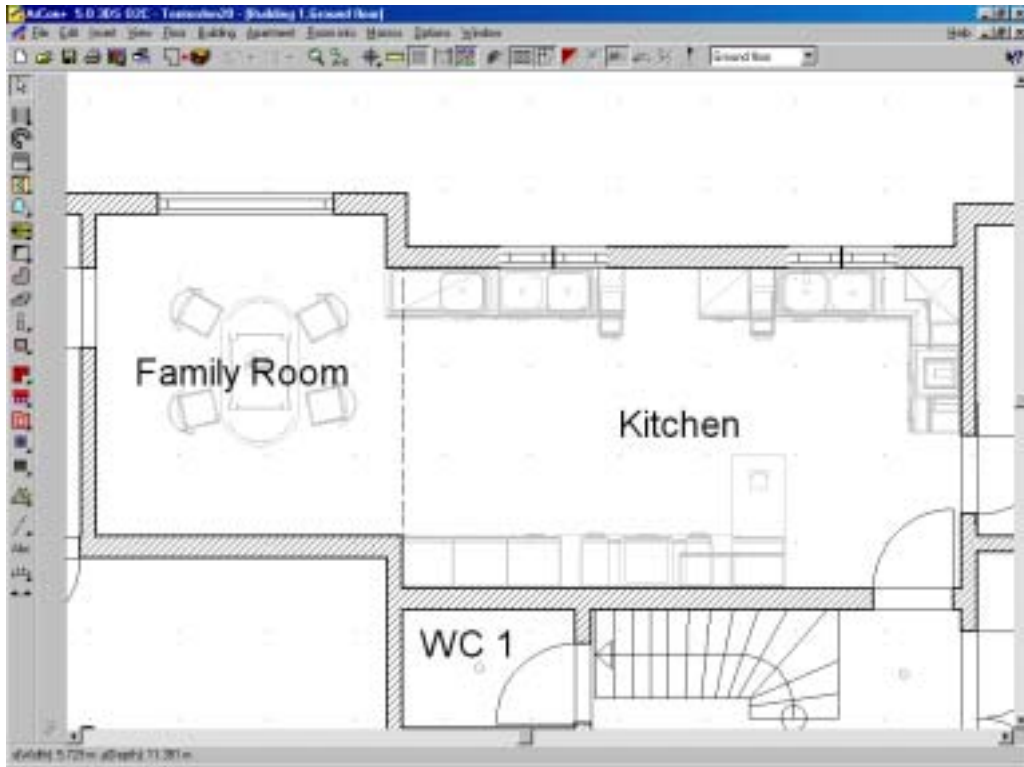


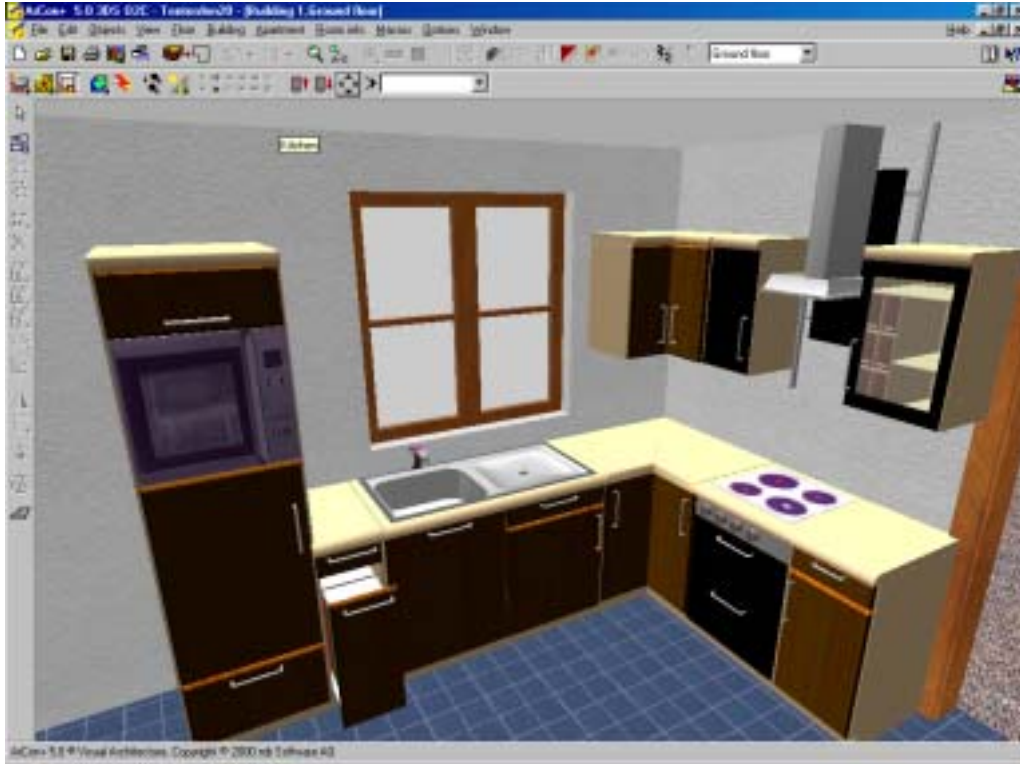
## The ArCon Project

---



Select an object from the 3D Catalog and drag and drop it into your 2D plan. If your object keeps snapping to other objects when you move it, then right click on the object, and switch the snap feature off.





### 10.2 Adding floor tiles / carpet

The texture catalogue contains 1300 bmp files that you can use for your textures, and if that is not enough you can import your own. To add floor tiles just drag the texture from the texture catalog onto the floor area.

### 10.3 Adding wall tiles

You can add textures to walls exactly as you do to floors.

ArCon 6.5 has the Tile Planner, which now allows you to create tiled areas on a wall, such as a splash back behind a sink or bath. The same principle can also be applied to floors.

## 11 Room Planning Example

You do not need to design an entire house if you are interested in only a single room.

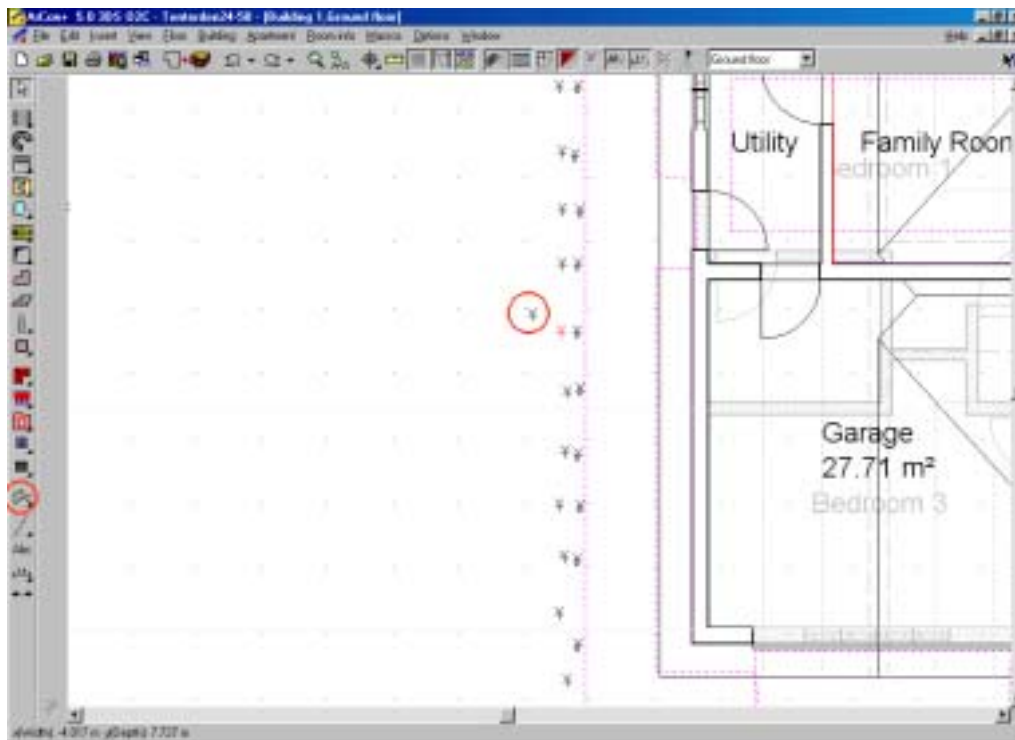
Occupational therapists (OT) are people that most of us will meet, as we get older. The bath that you climbed into for most of your life may become impossible to use in your later years, or your shower unit may need to be adapted for wheelchair use. Occupational therapists have the task of designing these changes and then convincing their client that the new equipment will blend in with the existing décor.

Occupational therapists therefore use ArCon to demonstrate to their clients how an existing room can be modified in order to cater for special needs circumstances. Most clients are elderly and have difficulty in understanding a 2D technical drawing. Occupational therapists therefore use ArCon to plan out a new bathroom and show the client a visualisation of the final changes.

The following project is a step by step example of how such an OT will present changes to a bathroom. Although ArCon has 3000+ objects in the catalogue, these consist of ordinary equipment. A shower unit adapted for special needs, such as for the use with a wheel chair will not have a lip on the floor. The doors will possibly open outwards. Such catalogues of such equipment does already exist. The catalogue that we will demonstrate here was supplied by Aquaneed Ltd.

## 12 Landscaping

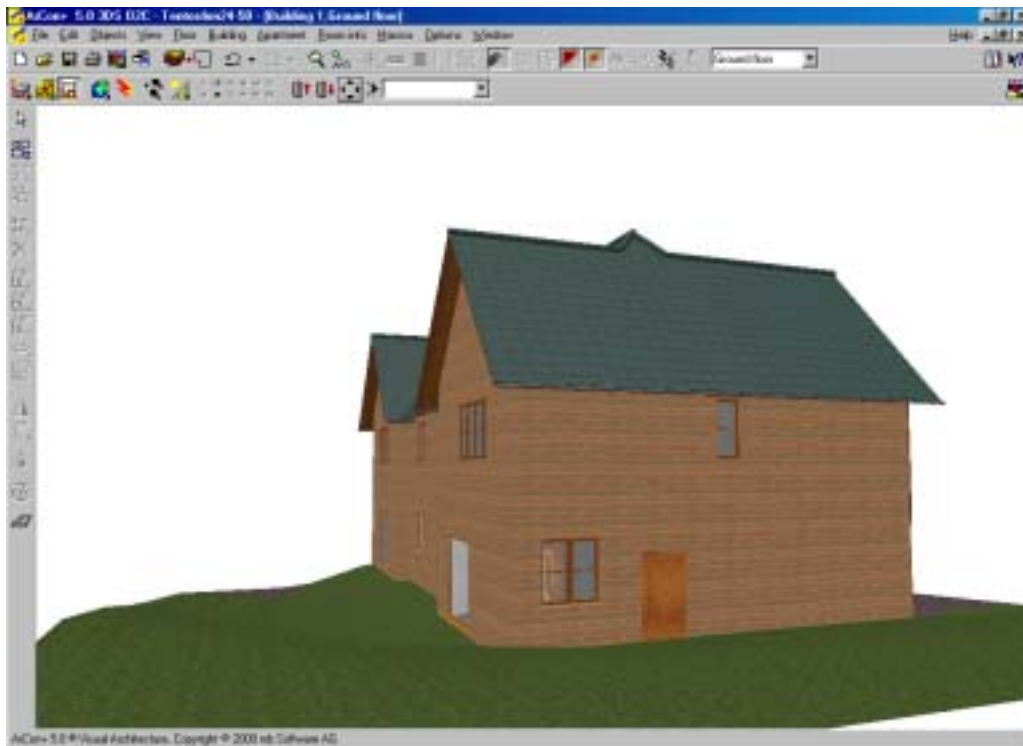
The landscaping had been completed before or after the house design. If you are building on a slope then it is a good idea to specify the ground shape and level first, as this may help you make some building decisions.



The ground contour is specified by setting the height for specific points. When setting the height of each point you can specify the absolute height or the height relative to the current floor height. If you need to create a steep slope then you may need to adjust the facet length in the Landscape dialog. (Right click on the ground area in 2D mode).







ArCon 6.5 includes 8 additional icons that allow you to specify complete slopes, hills, plateaus and terraces with a single input.

## 12.1 I cant change the height of my ground floor

My ground floor has the **height above ground** floor level in the **Edit current floor dialog** grey out, ie non editable.

This will be due to you have another floor (a basement?) below the ground floor. Change the **height above ground** for the lower floor and all floors above will change.

## 12.2 My projects on a plateau

I used the height above sea level values from an OS map and now more project appears as if its on top of a plateau.

You should make your heights relative to the sea level contour that your ground floor exists on. For example if your heights vary from 100m to 110m and your ground floor lies on the 105m contour, then set your height markers between -5 m and +5m relative to the 105m contour (i.e. ground floor = 0m).

### 12.3 Patio / Flagstone designs

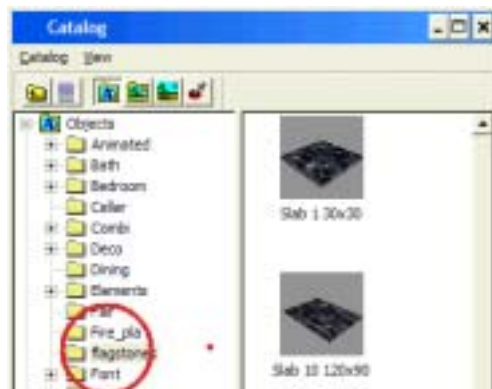
ArCon can also be used for designing your patios and drives, using flagstones and other concrete and stone slabs.

Download the free flagstone set of objects from [www.3darchitect/landscape](http://www.3darchitect/landscape)

Save these objects in the following arcon directory:

#### **ArCon\Objects\Outside**

So that the next time you load ArCon you will find the following objects in your object library:

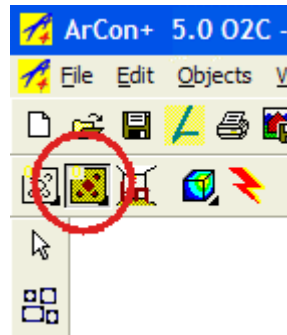


You should have 10 flagstone objects in your directory of varying sizes:

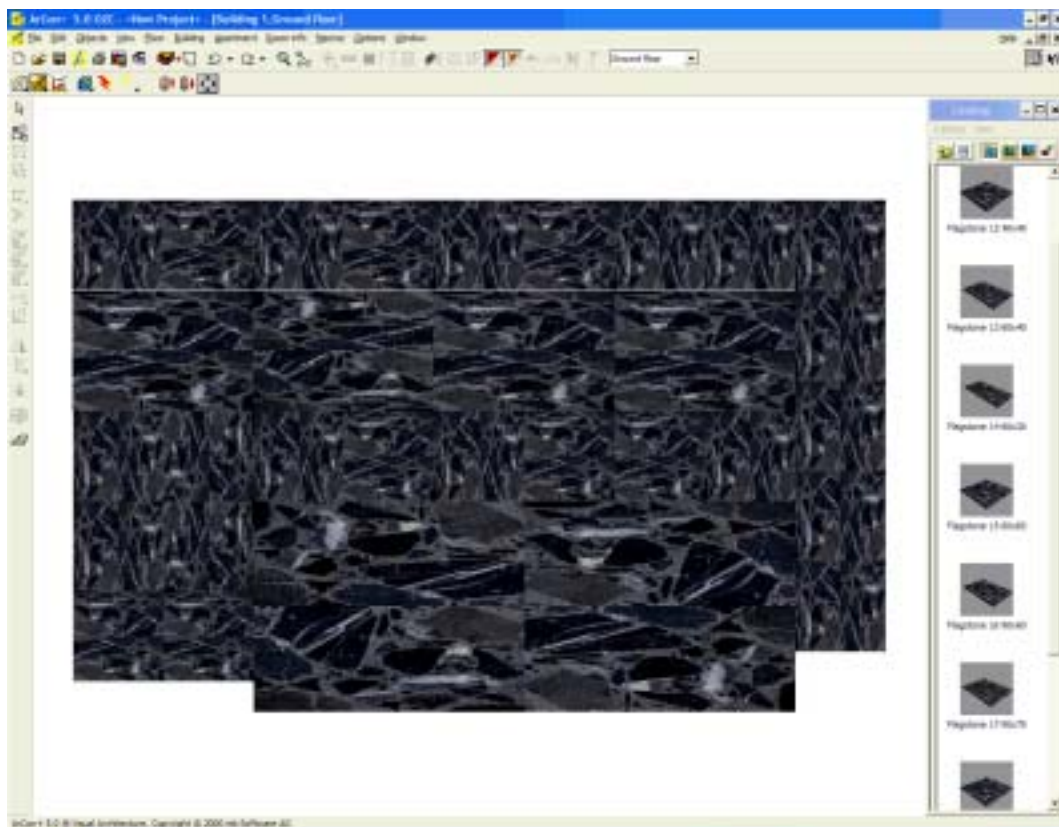
30x30	90x60
40x40	90x70
60x40	90x90
60x30	120x60
60x60	120x90

There are 2 sets of flagstones: a set with a 1cm grout border and a set without any grout border.

You should select 3D mode / Plan view:



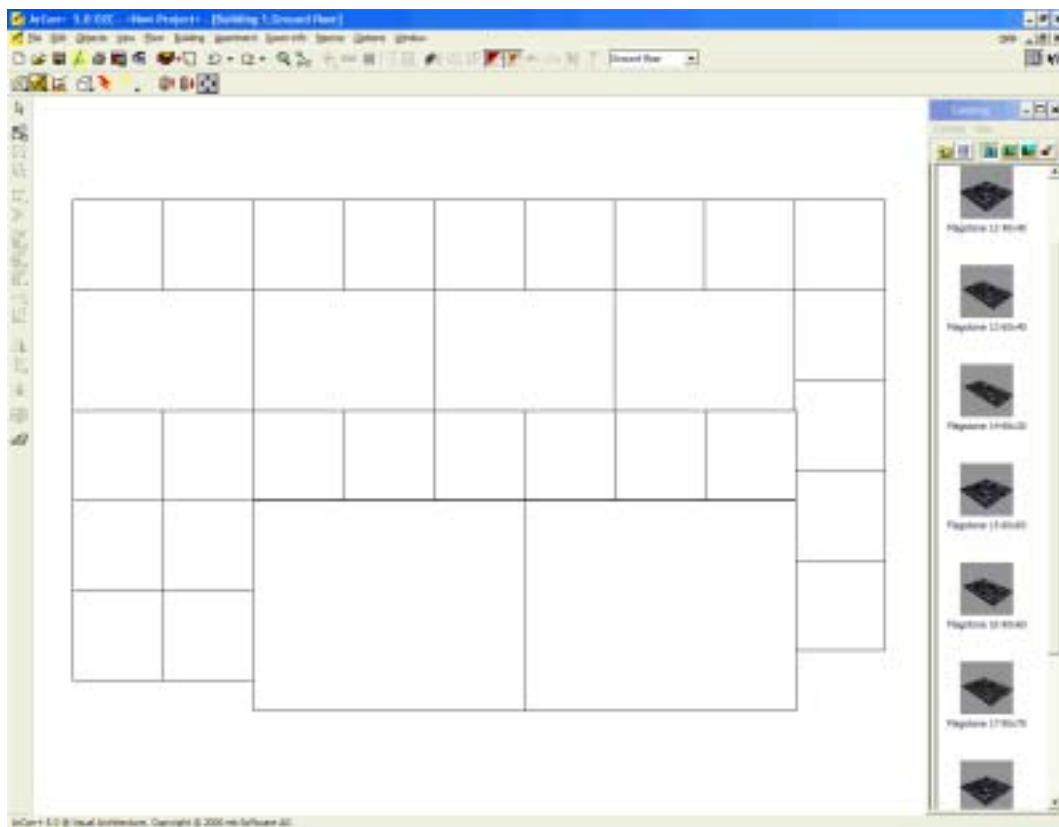
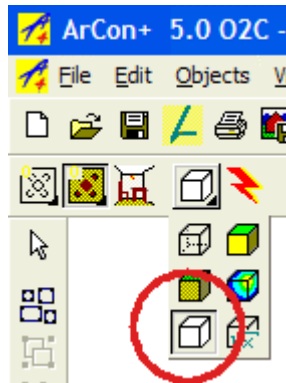
The flagstones can then be dragged into position:



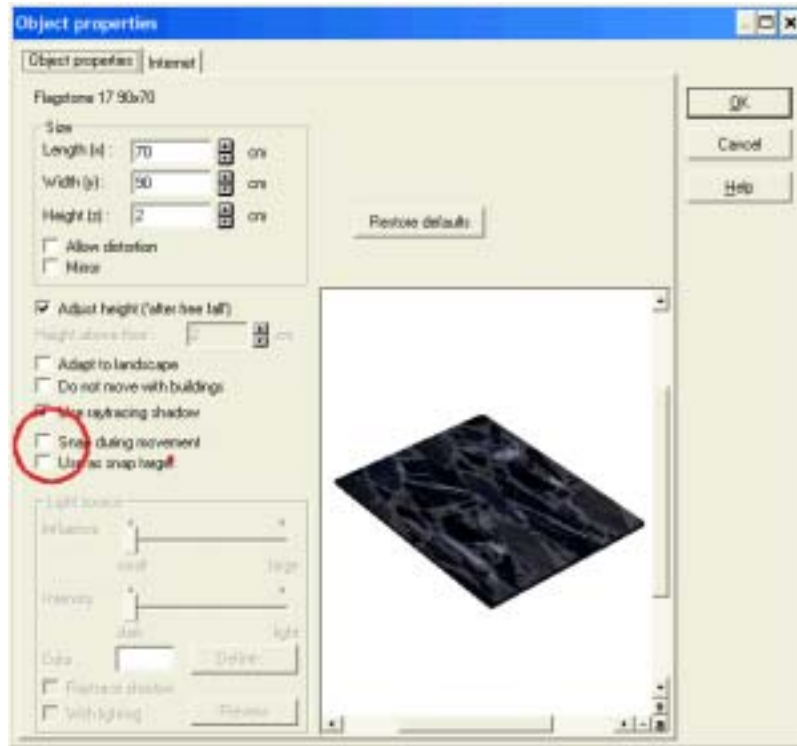
However if you select the **Wire frame** mode you can see precisely where the flagstone edges are located:

## The ArCon Project

---

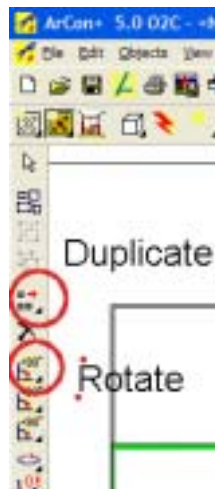


The objects will snap to each other. This feature can be switched off by double clicking on an object:



Using combinations of the wire frame and 3D/ plan views, you can plan out exactly the flagstone shapes and then also view the effects of the patterns.

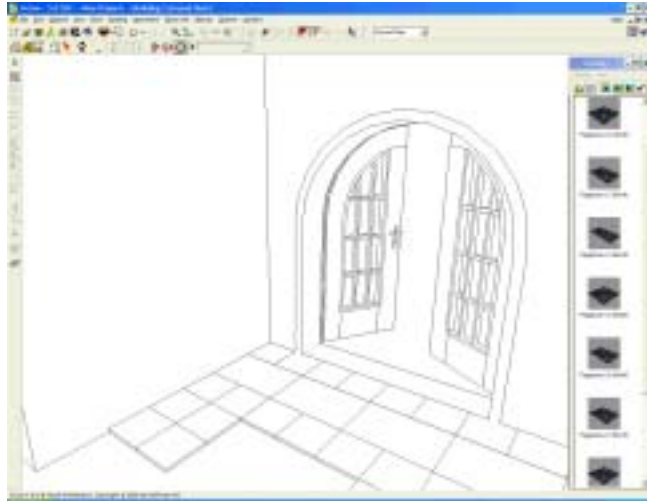
Use the copy tool to duplicate patterns. Use the Rotate tool to rotate the flagstones. If you right click on the Copy tool, you can select the copy direction. If you right click on the Multiple copy tool, you can arrange multiple objects with variable offsets.



## The ArCon Project

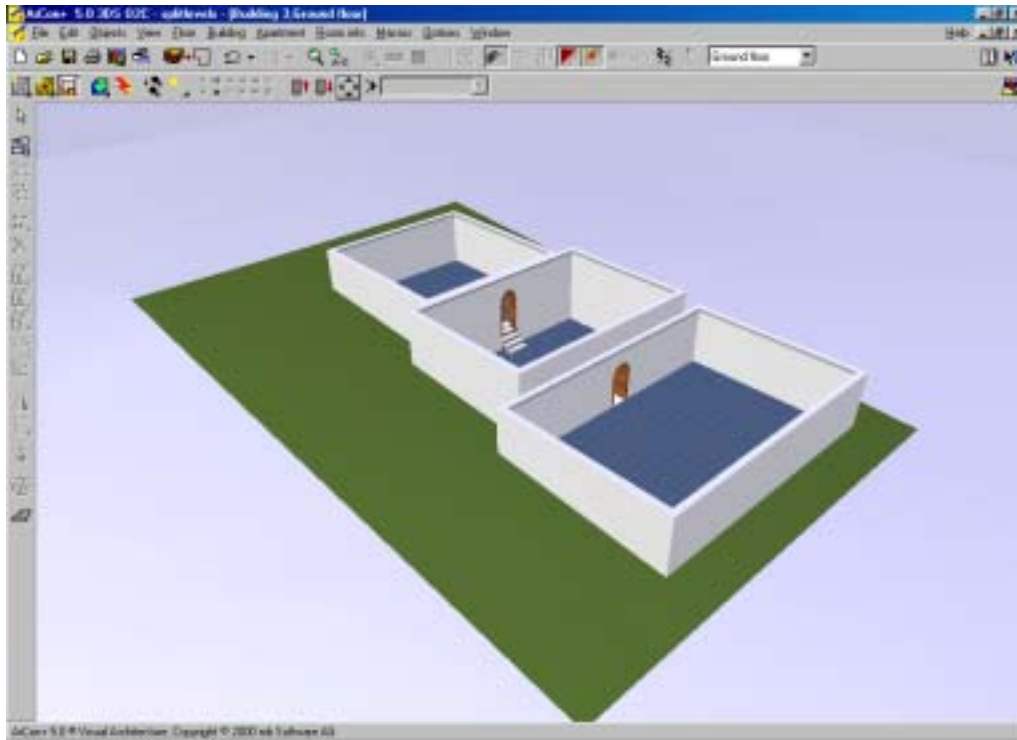
---

If you have a digital camera (or scanner), you can create your own textures, which you can then drag onto the flagstones.



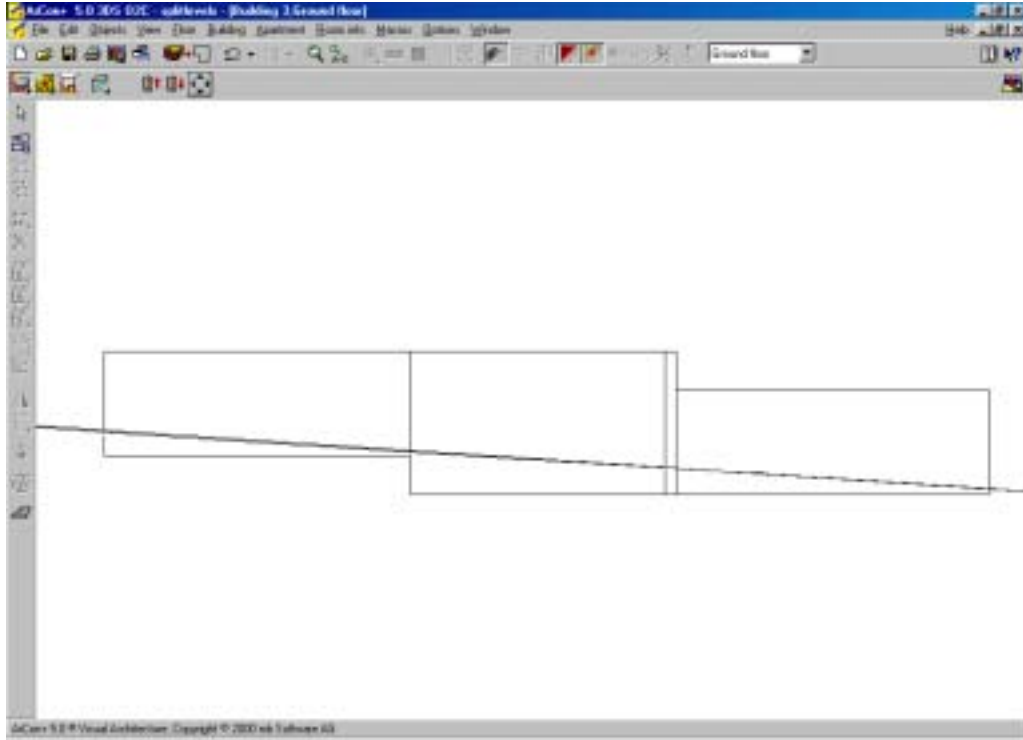
## 13 Split Levels

Only ArCon + is capable of producing buildings with varying floor levels. This is achieved by using the multiple building feature.



## The ArCon Project

---





## 14 Attics and Attic Conversions

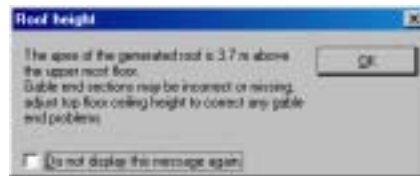
The most common asked questions concerning attics:

### 14.1 Why is my attic/roof on the floor?

Even an attic requires a floor. So if you have a bungalow, you will require two floors, one for the ground floor and a second for the attic.

### 14.2 I have space in my gable end, how do I fix this?

This generally occurs after receiving the following warning:



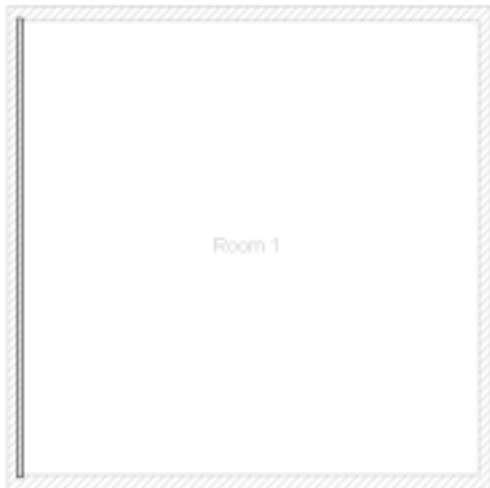
To resolve this you should make the floor height higher to accommodate the current roof pitch (or reduce the roof pitch).

### 14.3 How do I create a Dormer that breaks the roof line?

See section: 8.6

## 15 Floor Joists / exposed beams

You can show exposed floor / ceiling joists. Follow this simple example:



Draw your room. My example is 10m x 10m internal measurement.

Drag the Elements / Bars / Rectangular bar, lying object into a plan view of your project.

When the bar is in the project, double click on the bar, to activate the Object properties dialog.

Click on Allow distortion so that you can set the beam dimensions to your desired sizes.

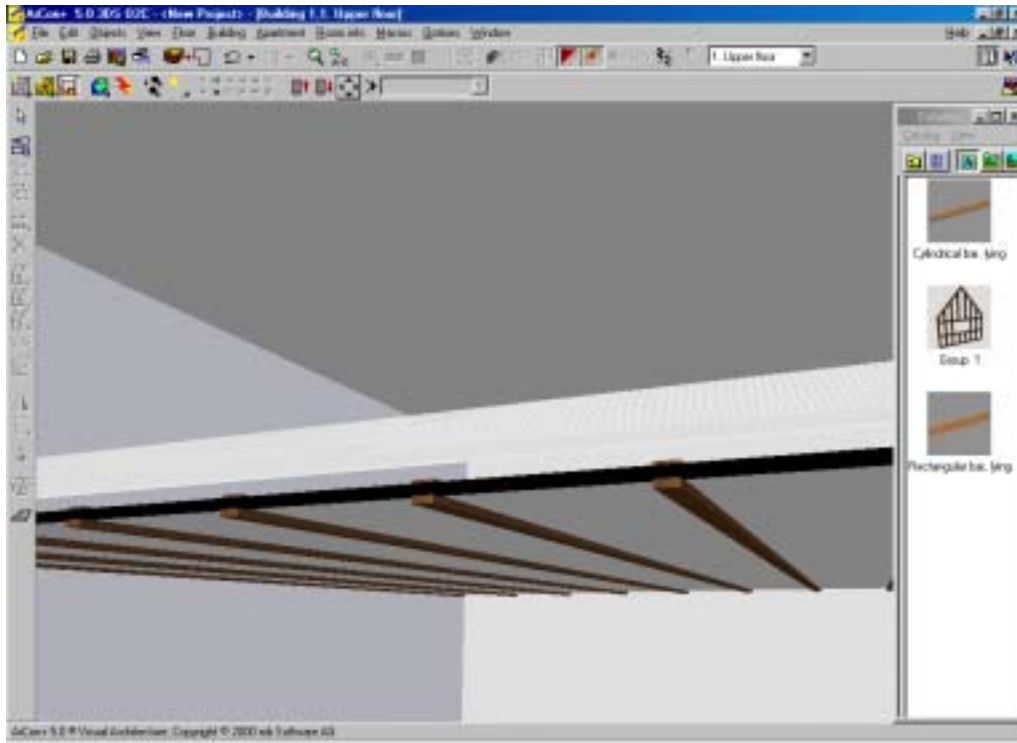
In the same dialog set the height of the bar object. (2.52m in our example).

Select the floor joist object and select the Multiple Copy icon (not the Copy icon that it is adjacent to).

Set the parameters as follows to copy the beam 10 times at a spacing of 1m:



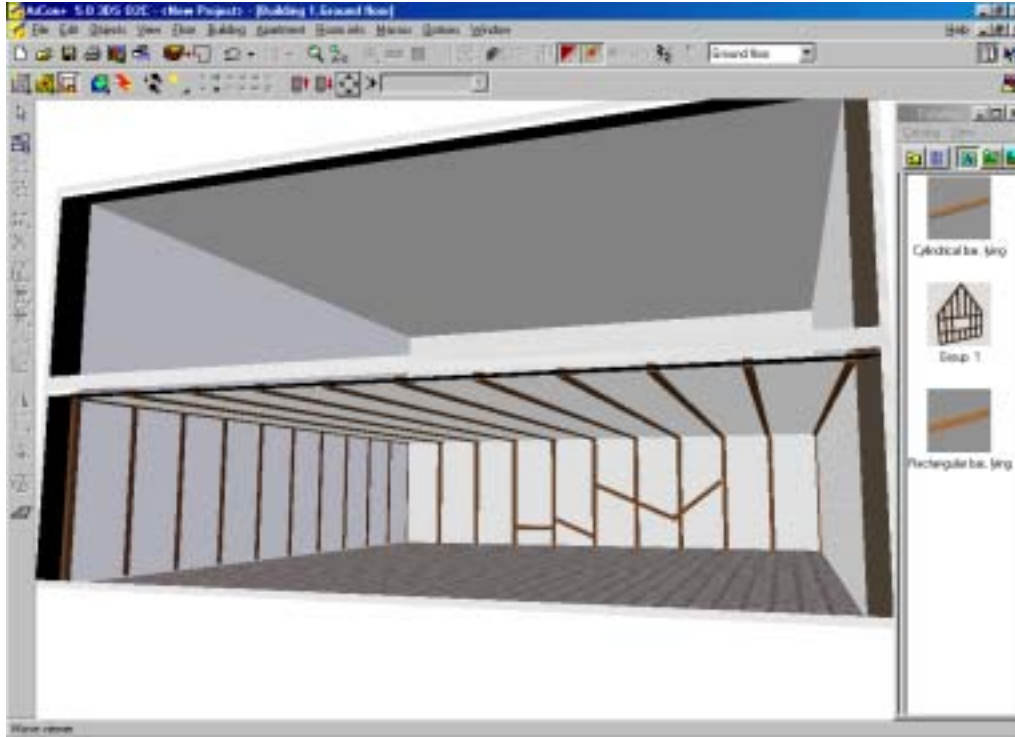
This will produce the following result as seen in a 3D view:



By copying and rotating our joist group we can quickly create a room consisting of exposed beams.

## The ArCon Project

---



Using this method you could eventually define the entire beam structure for a barn conversion.

## 16 Cellars

As far as ArCon is concerned a cellar is just another floor level, normally without exterior doors and windows, however this may not be the case with a building built into a slope. You add a cellar to your ground floor in exactly the same way as you would add a first floor.

## 17 Creating own textures

The ArCon texture library is made up of .bmp files. These consist of the following formats:

	Width	Height	Colours
Carpets	128	256	256
	256	256	256
Roof Tiles	256	256	256
	138	128	256

### 17.1 Texture Problems

I use ArCon to create 3D models for other people. Although I use ArCon + many of my customers use ArCon standard to view and edit my projects. Quite often I create new textures and need to supply these textures to the customer. Where should the textures be placed?

The easiest method is to create a project folder and keep all textures (and o2c objects) together with the .acp project file. You then only have to send the entire folder to your client. ArCon will search the texture paths defined, but will also search the source folder from where you loaded the project.

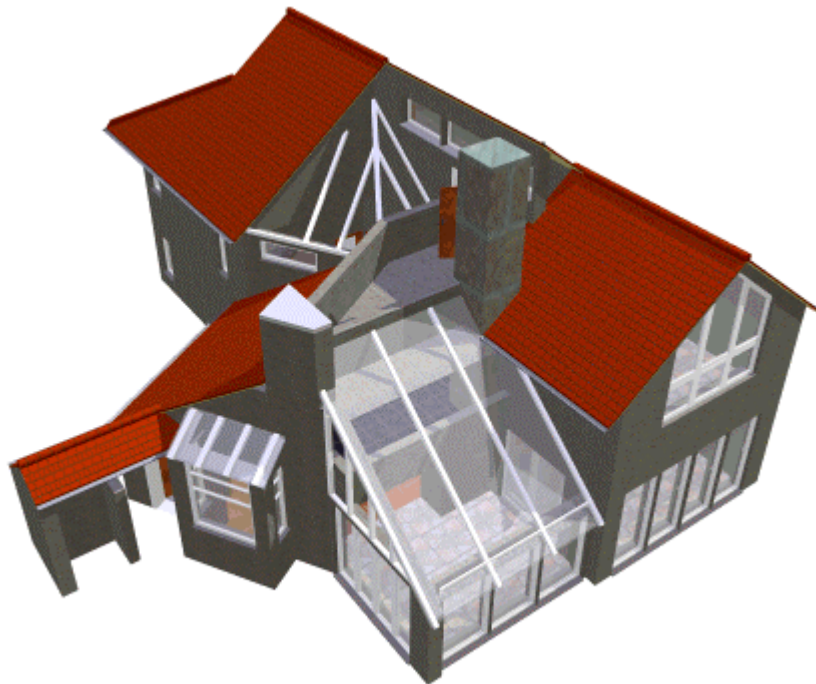
## 18 Multiple Buildings

The Building menu (ArCon+5 / +6.5 only) is very useful, even if you do not intend to have more than one building. For example, you may have a complex roof structure, which would be more easily created if your building consisted of more than one building. As far as you are concerned you have 1 building, but the software will allow you to edit the roof sections individually.

Sometimes ArCon may complain that a wall structure is too complex. Simply try drawing that wall structure as a separate building. You will normally find that it will then work. You can also use the Multiple Buildings feature to add a building layer onto which you can place anything, including dimension lines, guidelines, 2D drawings representing electric and water services.

### 18.1 Multiple Levels (Split Levels)

If you have a project that requires floors to be at different heights then you will need to plan your project ahead. Floors at different heights should be assigned to separate buildings.



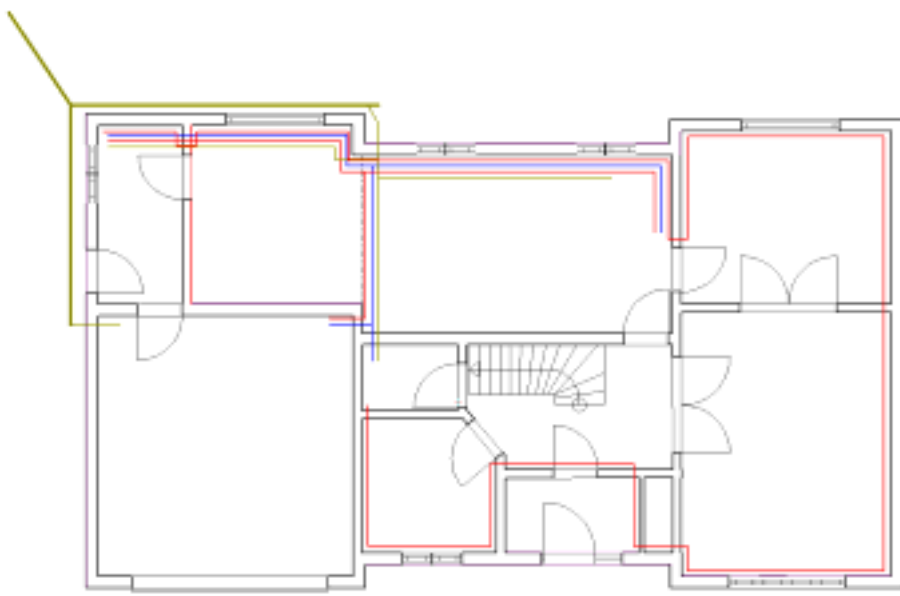
This design shows a complex roof structure and multiple split levels. The project consists of 6 buildings. Roof elements can overlap roofs belonging to other buildings. This method gives a good visual result but will not reflect the true roof timber structure.

## 18.2 Service Layer

Create a new building (ArCon+ 5 / 6.5 only). Call this layer Services, or Water or Heating. Activate the 2D Graphics Editor in the Macro menu. This will cause the 2D Editor tool icon to appear in the vertical icon bar:



These tools will then allow you to draw pipe and wiring runs, allowing you to define both the line size, colour and style. Using the Visible buildings menu, you can hide/show this layer in your 2D drawing at any time.



You can also show your radiators in the 2D plan by placing 3D radiator objects into your project. ArCon+ 6.5 will allow you to change the 2D symbol that represents the 3D radiator object.

Although ArCon contains the 2D Graphics editor, CreativeLines contains an extended 2D editor which combined with the 2D symbol library is a better solution.



### 18.3 Complex Roofs

Roofs, which cannot be constructed normally with the Roof Editor can often be created using multiple buildings.

Here is an example of a complex roof resolved by using multiple buildings. Although the building itself had regular floor heights, the addition of the conical towers required was enabled by creating an additional building.



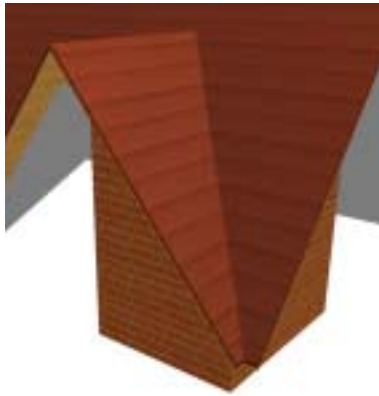
Adding the roof to the round towers cuts into the main roof and would cause the following problem:



## The ArCon Project

---

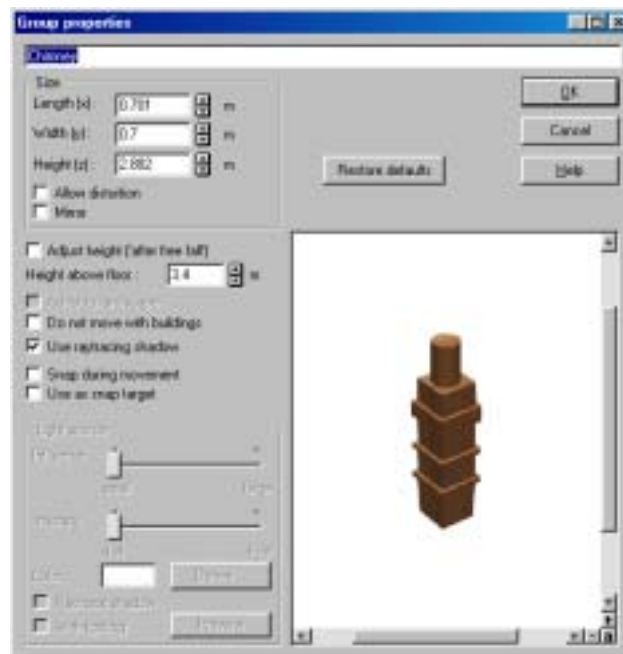
This can be resolved by creating a new building and copying the roof to the new building. You can then build up the wall section that the conical roof insists is cut out on the first building.



## 19 Creating own objects

Objects can be created with 3D Studio Max or TrueSpace. The **o2cComposer** is required in order to load in and convert 3ds files to o2c files, which ArCon can load. The internet contains thousands of free 3ds objects that can be converted into o2c objects using o2c Composer. Depending upon the object, the o2c composer is also capable of scaling and changing the textures used.

Many objects, such as chimneys can also be constructed from the base elements found in the standard object catalog. For example you could create a chimney from a rectangular block and a cylinder:



If this is an object that you could use again you can drag it back into your catalog.

### 19.1 3ds objects

The internet contains thousands of 3ds objects, all of which can be loaded into the **o2c Composer** and then saved as .o2c files. The **o2c Import Filter** is an add-on product that will allow ArCon to import .3ds files direct. You can search for .3ds objects using the [www.google.com](http://www.google.com) search engine. Simply enter 3ds furniture as your search criteria and you will then see many web sites containing furniture objects. Many are free, or free for non-commercial use, but other high quality objects may have a fee.

## 20 2D Plans

### 20.1 Printing plans

You do not need a large format printer if you need to print A2 or greater sheets. Many copy shops and of bureau services offer a printing facility. You may also have a colleague who can print large format drawings. Install the appropriate printer driver. Many printer drivers (but not all) do not need the printer to be attached and will allow ArCon to Print to file. You can then send that file to someone with that printer, and they should be able to reproduce the output to paper.



Every printer driver is different!

### 20.2 Using plans for planning application

**Important:** ArCon will not advise you on requirements for planning. You must need to know what is required for such an application. ArCon is capable of producing drawings required, but you must know what is required. Our web site contains reference books that can help with this. We also have details of architects that use ArCon, who may be able to fulfil your requirements for producing plans for building regulations.

### 20.3 Multiple view plans

If you need to create several views on a single sheet then you should use the 'add-on' product CreativeLines. This will import each view individually and allow you to move the views around the sheet.

#### 20.3.1 CreativeLines

This product is not just reserved for the professional architects, but for anyone that wants full control on how their completed projects are displayed. ArCon allows you to display a single project view per page. If you require multiple views on a single sheet, then you should certainly investigate investing in CreativeLines. This product will import all your

project views and allow you to reposition them. It also has advanced 2D drawing features beyond those of ArCon and is a brilliant tool for those that wish to include cross sectional details of foundations and cavity walls.

See the section for CreativeLines for further information.

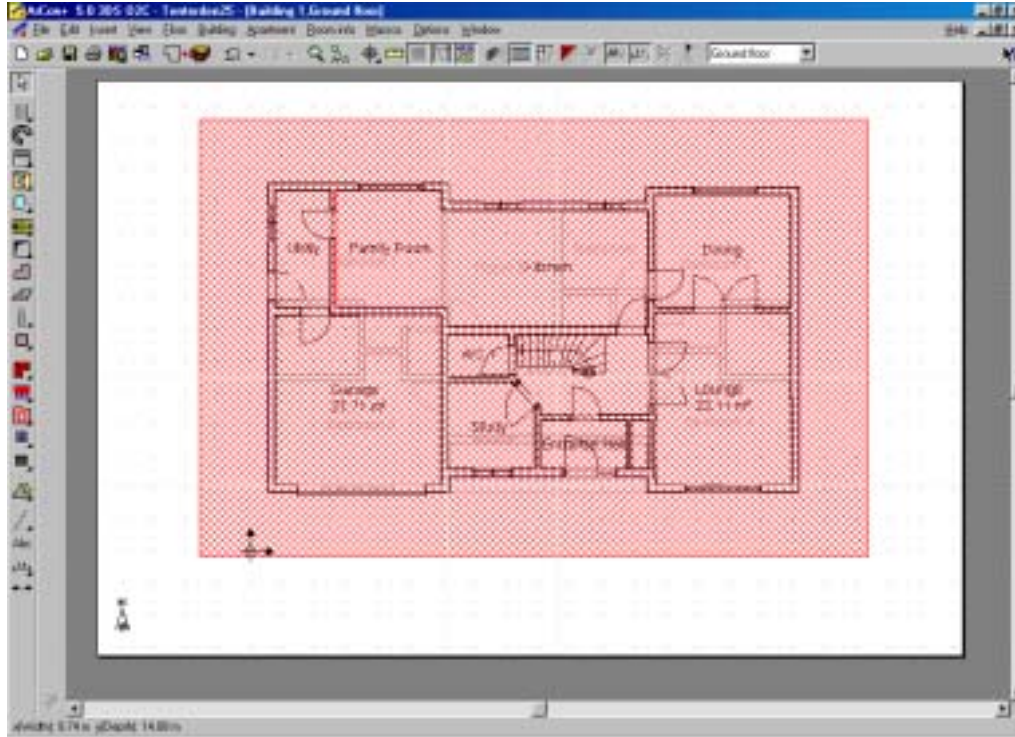
## 20.4 Printing problems

20.4.1 I can't print out my plan onto a single sheet. It always wants to print onto multiple sheets.

SCALE: If you set a scale of 1:20 and you draw a building a 10m long, then you would need a sheet of paper 50cm wide just to display this wall. If you are restricted to paper width and do not wish to print on multiple sheets then you must adjust your scale accordingly. Remember that the project is likely to be wider than just the wall as you will possibly have defined other areas and remember the drawing information box in the bottom right. Creative Lines add on will allow you to be more flexible with your page layout. See the section Establish the scale

## 20.5 Project Position

You will often find that your project is off centre. My projects usually are offset to the bottom left. Not only does this look untidy, but it may cause problems when you want to add some landscaping and you run out of space.



You can drag an entire project to a new position on your sheet. Just click outside the bounds of your project and a red double hatch area appears. You can now drag your project to a new location. To disable the selection click anywhere outside the hatching or press **Esc**. You may sometimes have accidentally have activated this feature while editing your 2D plan and if you were zoomed in, the red hatching fills the entire screen and so it is impossible to click outside this area. Use the **Esc** key in these conditions to de-activate the red selection hatch.

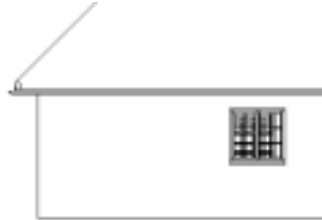
If your project consists of multiple buildings (ArCon+ only) you will find that you can move each building independently.

## 20.6 End Elevation Views

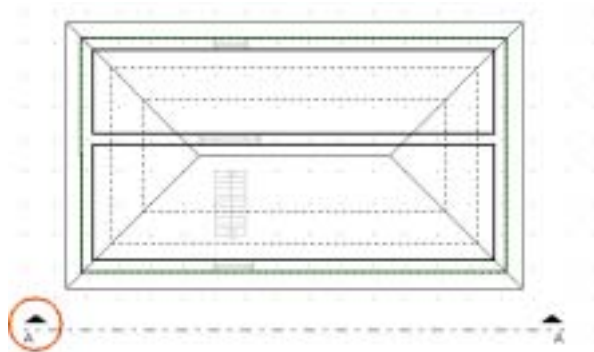
End Elevation views are only available in ArCon+ 5 / +6.5).

End elevation views are important, especially if you want to submit your plans to your local planning authority.

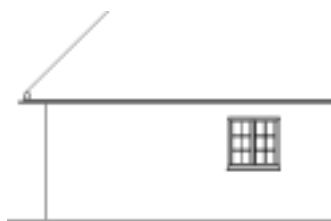
When producing an end elevation view you will notice that you can see the internal structure through the windows and open doors:



Although there is an option to switch off the display of internal objects (ie furniture), this does not apply to stairs, doors and other windows, which can be seen. To produce an end elevation view without this internal clutter, simply place a cross section line in front of the building and view the cross section.



The following end elevation view can be produced without the internal structure showing:



Elevation views may sometimes also display additional lines where floor breaks occur. You can not normally remove such lines, however using CreativeLines, you can import all your views and be able to edit/delete any line in a plan or elevation.

## 20.7 Planning Application Drawings

ArCon+5 and ArCon+ 6.5 are quite capable of producing drawings suitable for submitting to your local authority for planning application. If you are not an architect, you will need

know what to supply, and we recommend that you still consult an architect to ensure that your drawings contain sufficient and correct information.

It is more important that you have a good understanding of local practices and methods, so that you can match your plans with those of the local planners.

You will need to supply end elevation drawings and only ArCon+5 and ArCon+ 6.5 are capable of producing these views.

Although ArCon does not display cavity wall lines it is feasible and acceptable to supply cross sections of your wall sections to demonstrate the cavity wall structure.

## 20.8 Building Regulation Drawings

ArCon+5 and ArCon+ 6.5 are also quite capable of producing building regulation drawings, again providing that you know what is required. These plans are more detailed than plans used for planning application, and are usually commissioned as an extra service after planning as been granted.

ArCon will not give any advice and all detail required has to be drawn. Building regulation drawings will also need to contain more written specifications, quoting the relevant building standards that apply.

ArCon does allow you to add text descriptions to your drawings, but it is recommended that CreativeLines (an add-on product to ArCon) is used for larger projects.

Exact drawing requirements varies between authorities, but normally require the following:

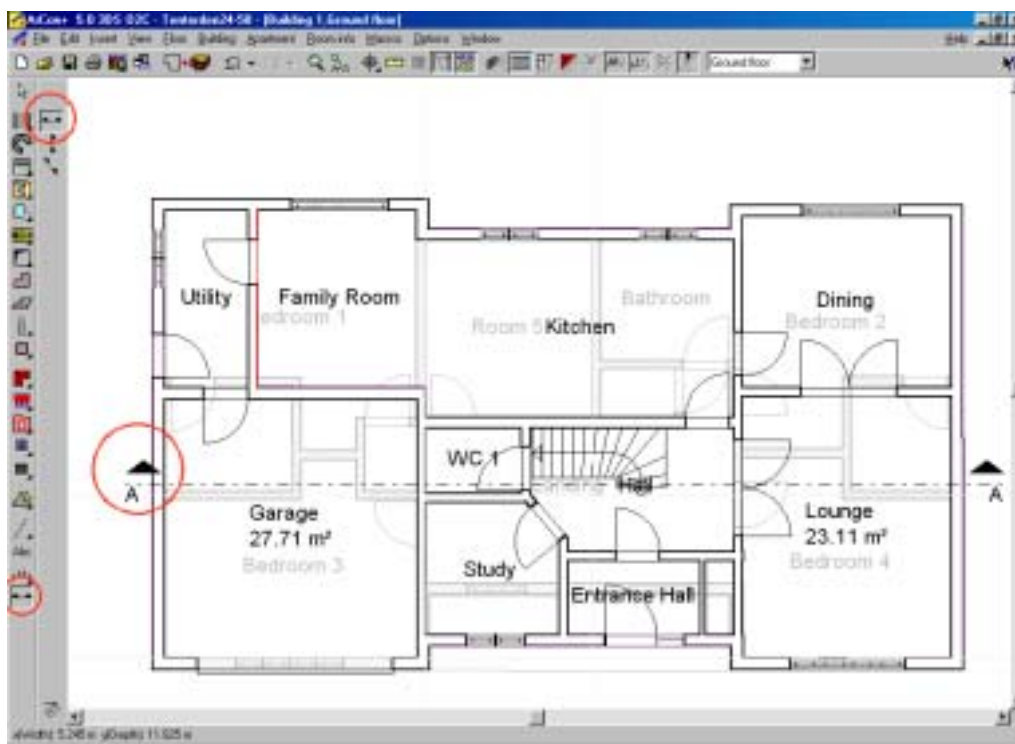
- Location plan at a scale of 1:1250
- Site plan at a scale of 1:500
- Proposed site plan
- Layout plans and elevations at a scale of 1:50 or 1:100
- Material details used

ArCon is capable of importing the OS maps as dxf files.



## 21 Cross-Sectional Views

Only **ArCon+** can produce cross-sectional views. ArCon Standard users can cheat, and see a cross section by selecting a wall edge in 2D mode. Double click on the wall to activate the Wall options dialog. At the bottom you will find a box '**Invisible in Plan / Perspective View**'. Select this a you can then view the building's internal aspect as if the wall was invisible. ArCon+ users have a full cross sectional feature....



While in 2D construction mode, click on the Cross-section tool. Three cross-section sub tools will then appear in the second vertical icon tool bar. Click on the horizontal cross-section tool. Then click at the point you want the cross section to apply and a second click to the right.

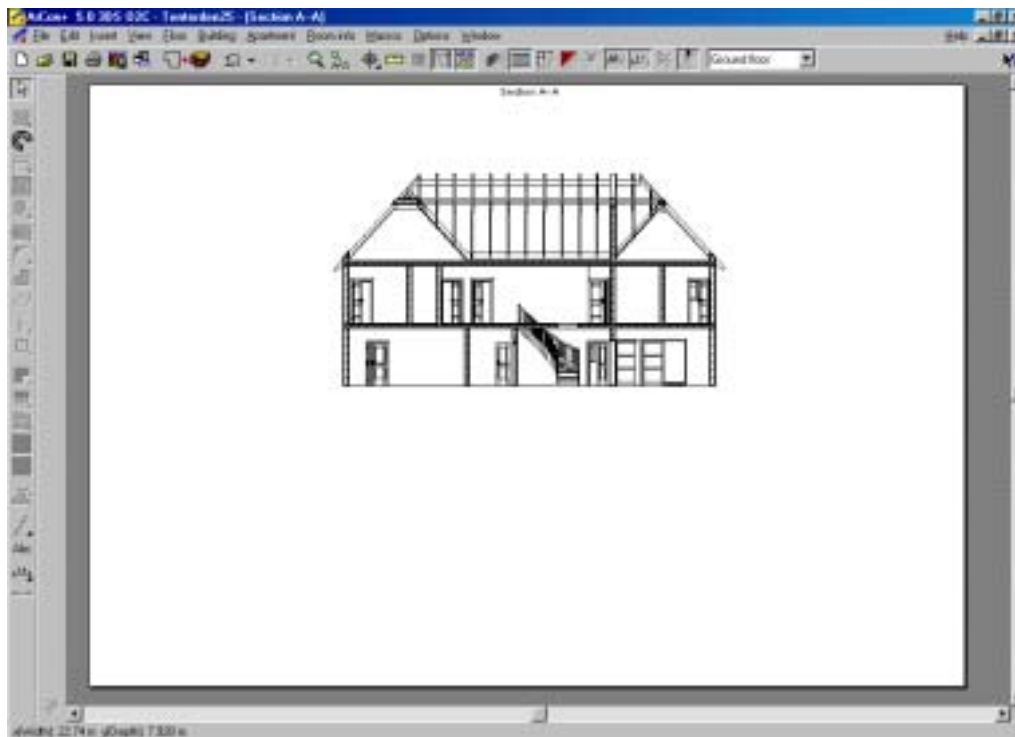
The **Section** dialog will then be activated:

## The ArCon Project

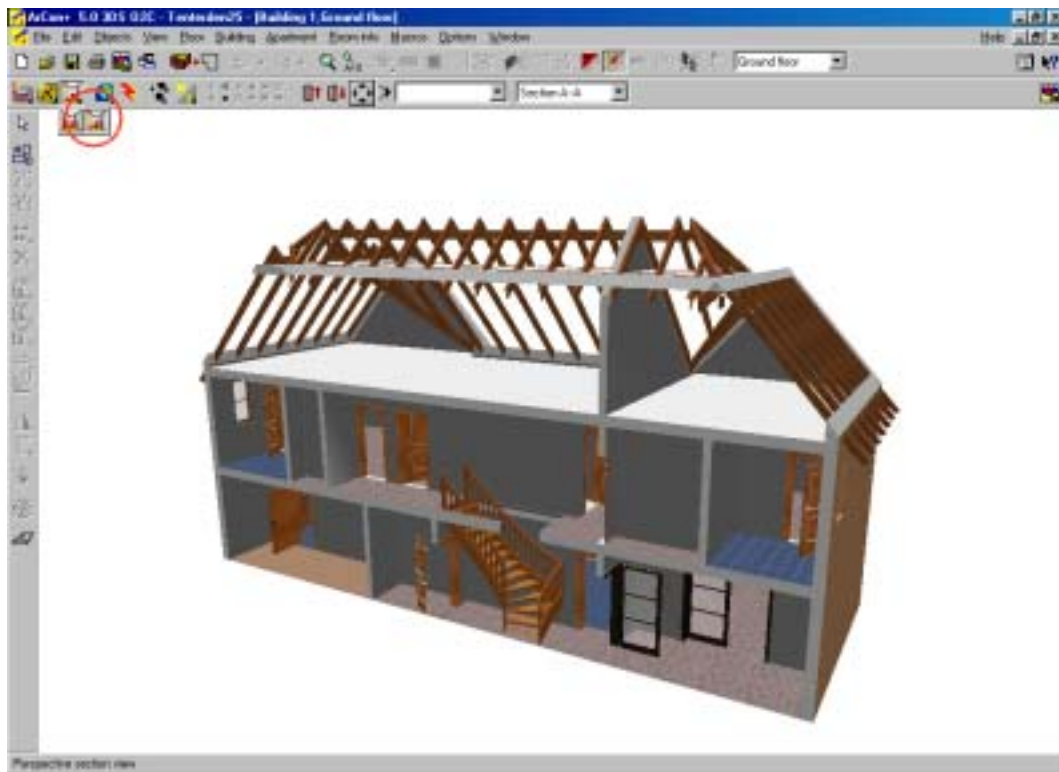
---



At this point accept all the defaults and click on OK. A second window will open titled Section A-A.



You can adjust the depth of the cross section from within the **Section** dialog. You can activate the **Section** dialog again by double clicking on the **Section** line. A 3D cross sectional can be viewed by clicking on **Perspective section view** icon.



## 21.1 Cross-section Problems

### 21.1.1 When I create a cross-section side / front elevation view the view is the centred on the sheet

Simply drag the edge of the sheet so that you can move the elevation view into the centre of the sheet.

## 22 Photo-realistic Images

### 22.1 Shadows cast by Sun, moon and lamps

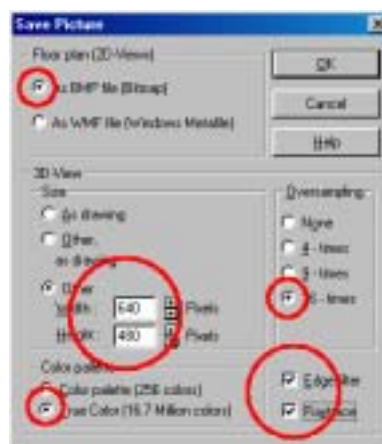
This tool can allow you to investigate the effect of light and shadows in your building.

### 22.2 Printing Raytraced Images

Many users will attempt to raytrace a 3D view on the screen and then be disappointed when they print the screen view. There are several ways to achieve a high quality printed image however the quickest is as follows:

**Step 1:** Achieve your desired 3D view, using the on screen raytracing facility to establish the view and approximate result required.

**Step 2:** Right click on the Save View icon, which results in the Save Picture dialog:



Ensure that you enable **Oversampling – 16 – times**, **Edge filter** and **Raytrace**, and **True Color** for best results. Higher resolution images can also be achieved by changing the **3D View Width** and **Height** greater than 640 x 480. Try 1280 x960. Its best to maintain the **Width – Height** aspect ratio. The higher the values here, the longer it will take to fulfil the raytrace, and greater the saved file size. When all required options are selected, click **OK**

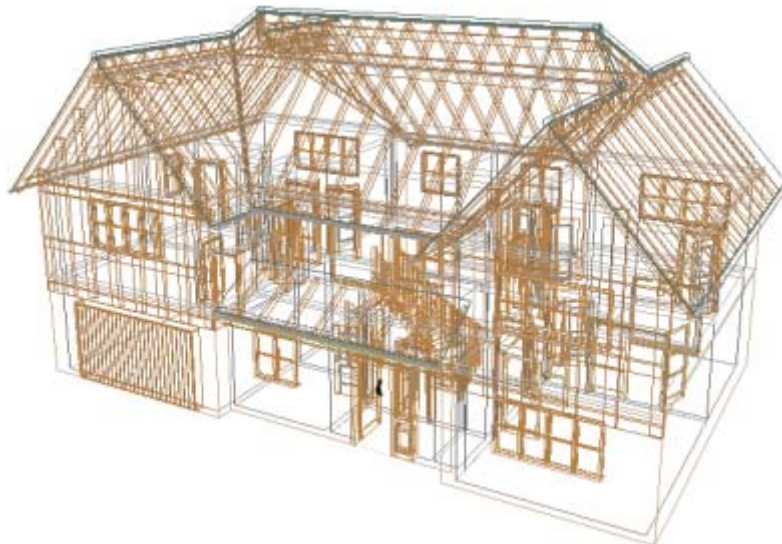
**Step 3:** Now left click on the **Save View** icon to initiate the raytrace to file. You can abort the process at any time by pressing Esc

**Step 4:** Load the resulting photo realistic image into a graphic program, such as **Paint Shop Pro**, where you can further edit the image, resize, change resolution.

All the images on our web site ([www.3darchitect.co.uk](http://www.3darchitect.co.uk)) where produced in this way.

## 23 3D View options

There are several view options:



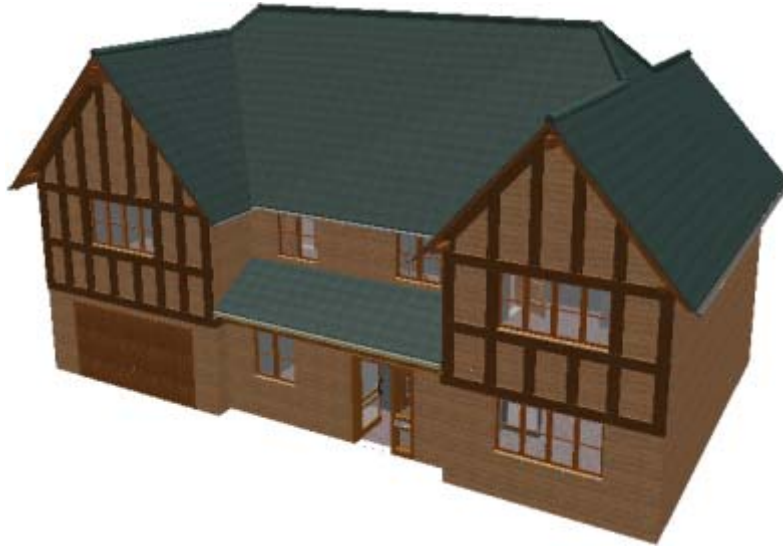
The wire frame view will show all line details.



Wire frame with hidden surfaces



Color + Texture (medium)



Color + texture high quality



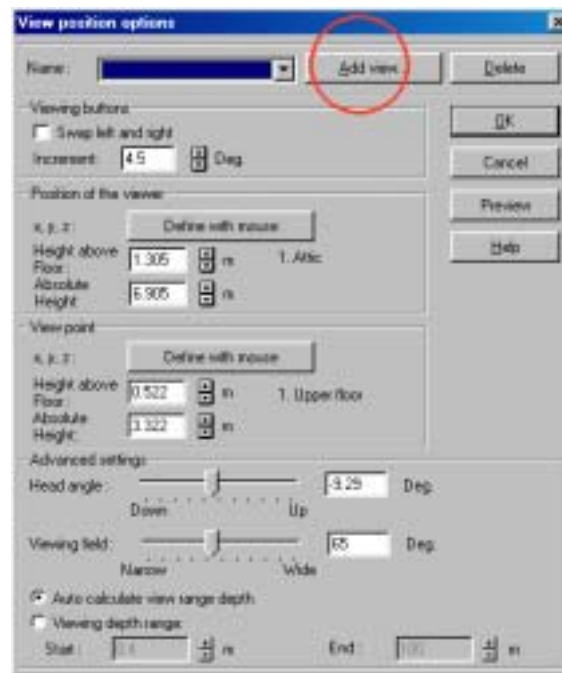
A raytraced view (with shadows)

## 23.1 Saving a View

You can save any 3D view position for later use.



To save your current 3D View position right click on the **Save view** icon. This will activate the **View positions** dialog:



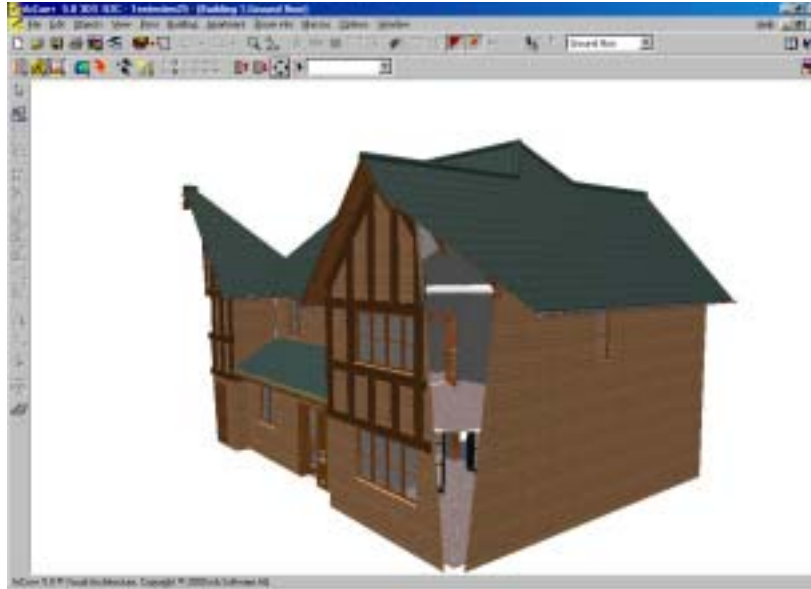
You can click on Add view... which will allow you to name the current view. This view will then also appear in the drop down list which appears when you left click on the **Save view** icon. This feature allows you to quickly move from room view to room view very quickly.

## 23.2 3D View Problems

### 23.2.1 Disappearing building

As I rotate my building, entire sections start to disappear.





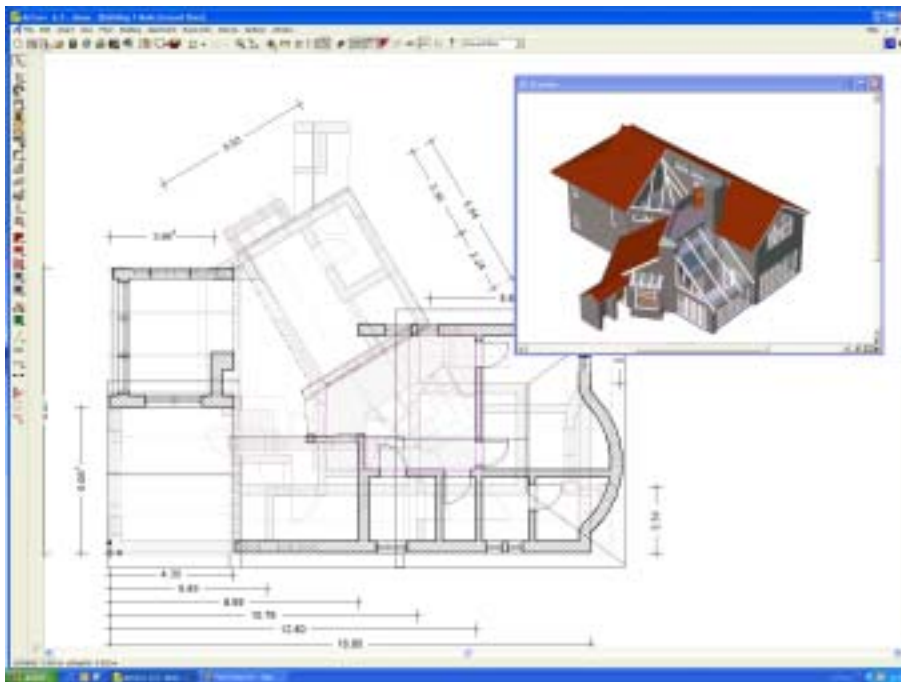
This effect can be resolved by changing the **Viewing depth range**:



Either change the **Start** and **End** of the viewing range or set to **Auto calculate**.

### 23.3 3D Preview

ArCon+ 6.5 is blessed with many new tools and features, but the most used will be the 3D Preview button. This view gives you an immediate 3D update of any 2D changes. This saves a lot of time switching between the 2D and 3D modes. The object can be rotated and zoomed just like any o2c object.

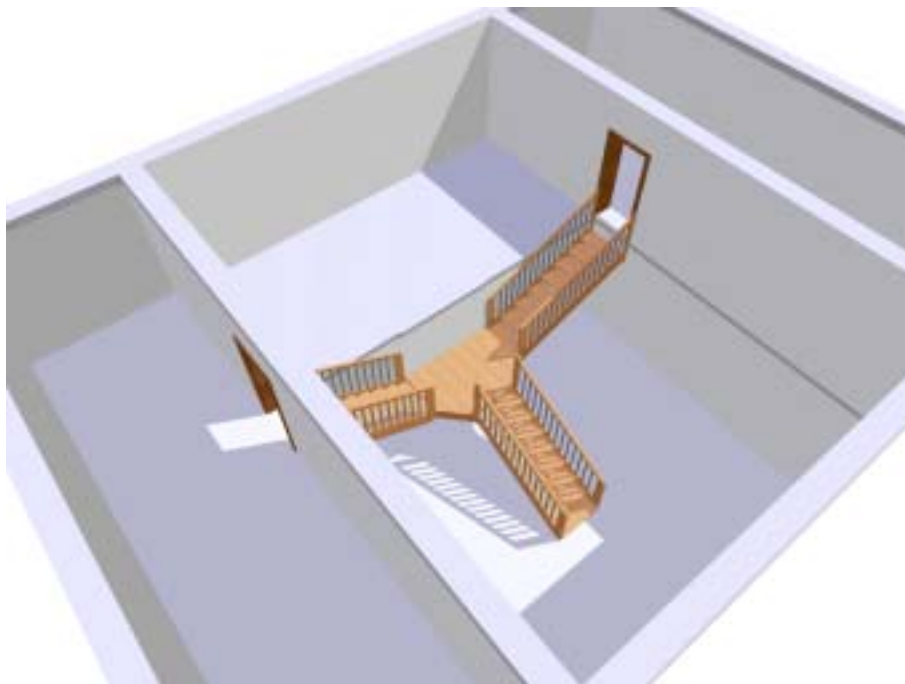


## 24 The Block Editor



This icon is perhaps the least underused on the toolbar and yet it is also one of the most powerful tools available.

With this tool you can create staircases, landings, adjacent buildings (as simple blocks), balconies (for those that don't have ArCon+ 6.5 Balcony Editor), in fact any regular shape that you may want in your project. ArCon+ 5 described this tool as the Platform Editor, as it was originally designed for just that, but its name changed to Block Editor as soon as it was realised what the tool was really capable of.



The above example shows how to create a set of 'Y split landing stairs' using the block editor to create a landing. To achieve this 2 buildings were used. The middle room is Building 1 and actually consists of 3 floors. The outer rooms are part of building 2 and consist of 3 floors. Stairs will only go from floor to floor and therefore the landing created with the block editor is actually sitting on floor of what would normally have been floor 2 of building 1. The ceiling was removed with the ceiling cutout tool. Combined with multiple

## The ArCon Project

---

buildings, allowing different floor heights, the block editor is an excellent tool to resolve all those split level problems.

## 25 Title Block

ArCon+ 5 uses a standard set of title blocks. The stand sets contain ArCon and mb Software logos. These are bitmaps that can be replaced with your own bitmap logos.

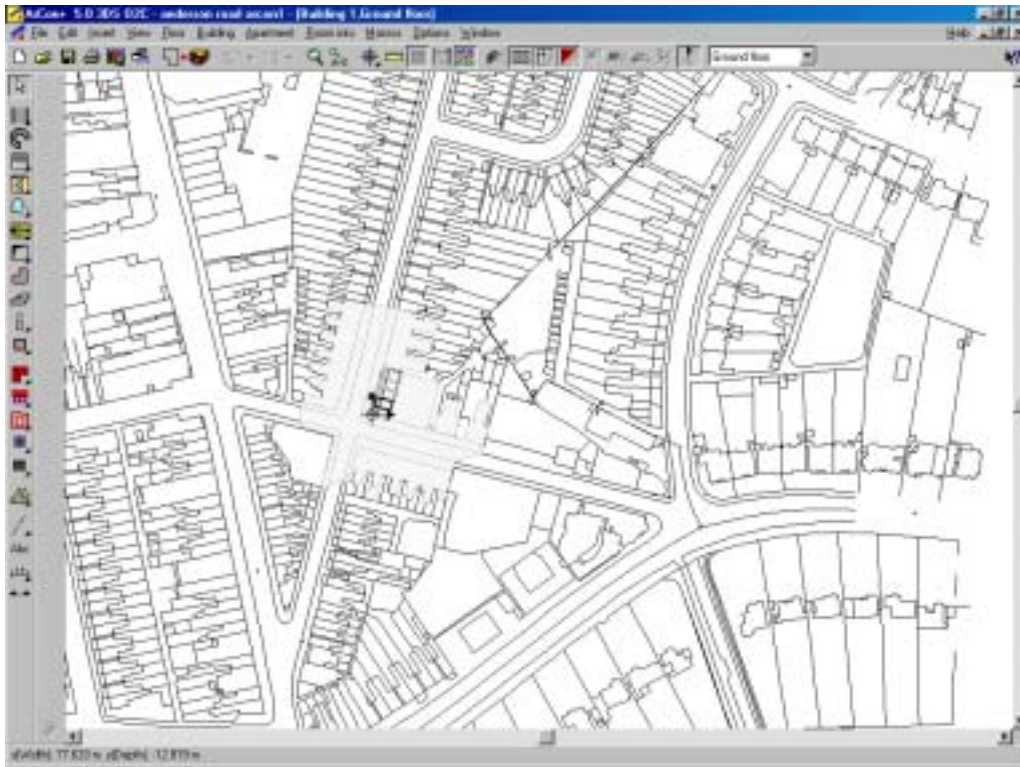


These logos are found in D:\ArCon\Program\STANDARD\LOGOS. These logos are a specific size, and so the best way to replace a logo is to load the original into an editor such Paint Shop Pro, and edit to your own.

ArCon+ 6.5 includes a full Title Block editor allowing total design of the block layout.

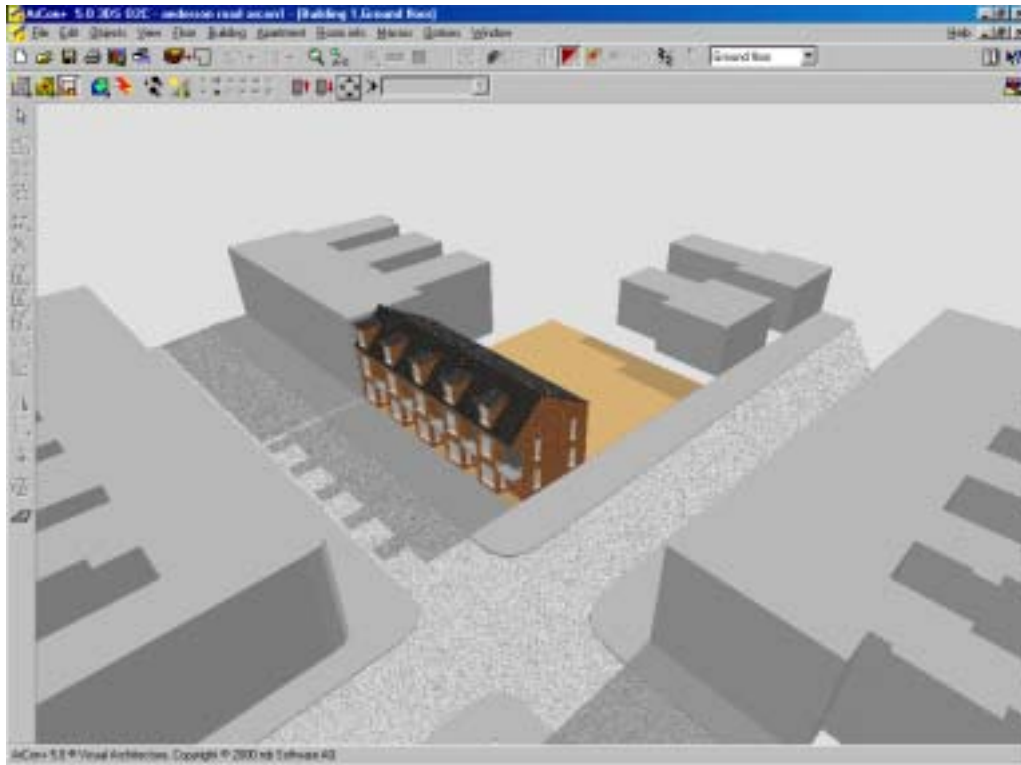
## 26 Importing DXF/DWG files

You can import DXF files to show your immediate surroundings. As an example I will use a project created by Birmingham City Council. Load the project in the BCC folder.



This shows an Ordnance Survey DXF plan that was imported into ArCon. It is an area of Birmingham.

The architect has used the plan to position a housing project and the immediate surrounding buildings. The detail of the surrounding buildings was not important and so the Block designer was used to define the building outlines. The purpose of this project was to establish the effect of shadows of the surrounding buildings on the proposed development.



## 26.1 Importing Town Plans in DXF format

You can obtain town plans in dxf format from [www.ordsvy.gov.uk](http://www.ordsvy.gov.uk). They have several products available depending upon what your intended uses is. Ensure that the map you request is available in DXF format and in the correct scale. There are many example map dxf files that you can download and load into ArCon to experiment with.

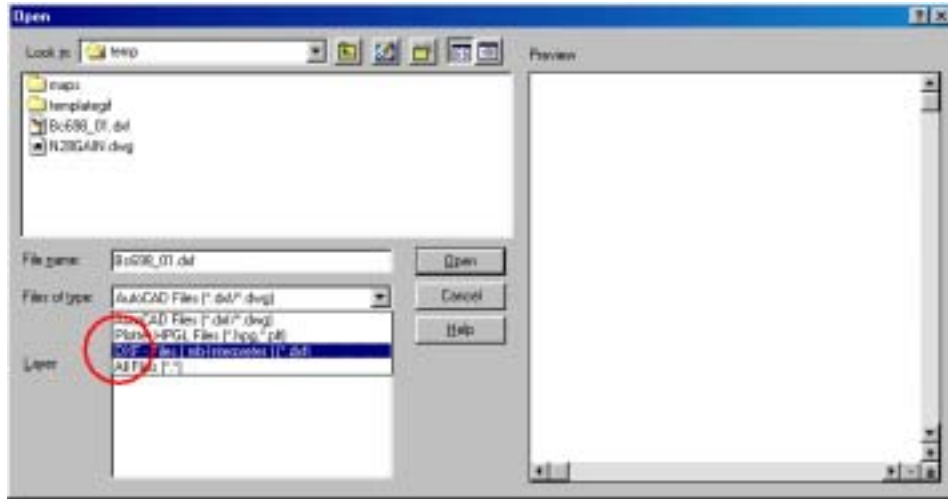
## 26.2 DXF Problems

I can't import a DXF file. I get a 'Loading file error'

There are two dxf format types that you can select. If the AutoCad dxf/dwg type does not work, try to import the DXF File type.

## The ArCon Project

---

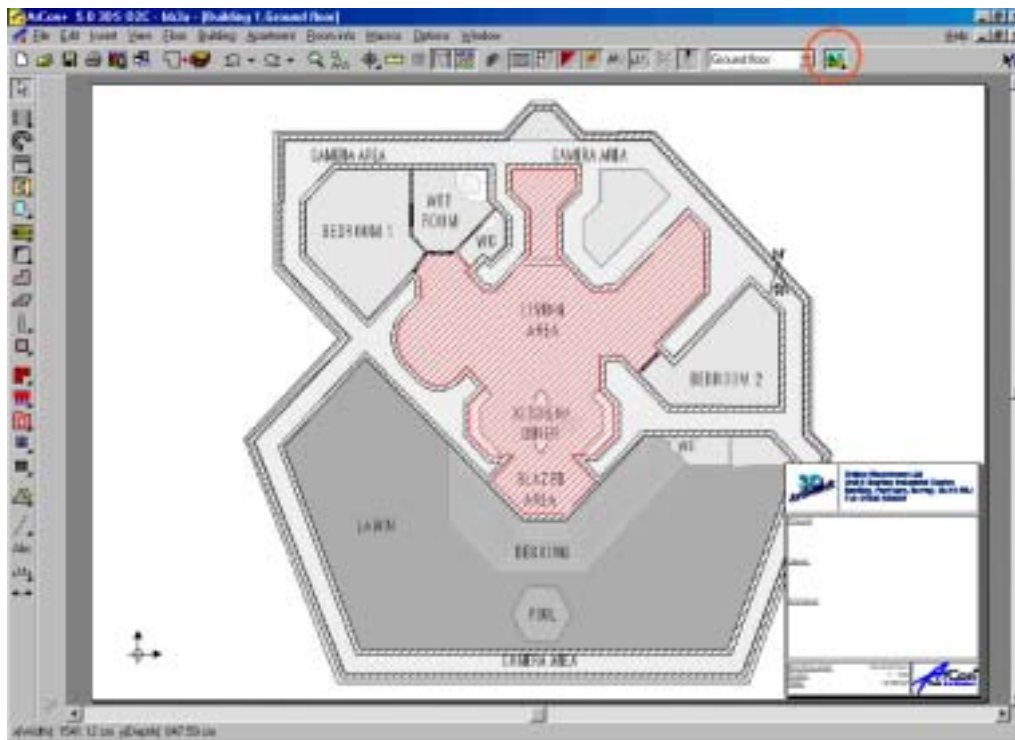




## 27 Importing a .bmp file as a source for tracing

You may not have a plan in dxf format and only have a printed version of a floor plan layout. In this case you can use the ArCon *Background* macro (found in the Macro menu). Using this macro function will allow you to import the following file types: .bmp, .wmf, .ico, .gif and .jpg.

The macro will allow you to scale and position the image, which then sits in the background of your project when in 2D construction mode. You can then trace round the image walls, placing your walls in the correct position. Note that the walls will not snap to the image.



Note that after starting the *Background* macro a new icon will appear in the top icon bar, allowing you to show / hide the background image.

Please also note that the original .bmp file has to be square, otherwise the plan will load distorted. You can not adjust the x-y axis aspect ratio.

## 28 ArCon Macros

ArCon has the Macro menu bar entry. The contents of this menu bar will vary depending upon what macros are installed. These macros are (sometimes) independent programs that live in the Macro folder. You may not normally know they are there as most of them run as if they are part of ArCon. These macros are very powerful as it enables a programmer to add and change the way ArCon works without having access to the ArCon source code.

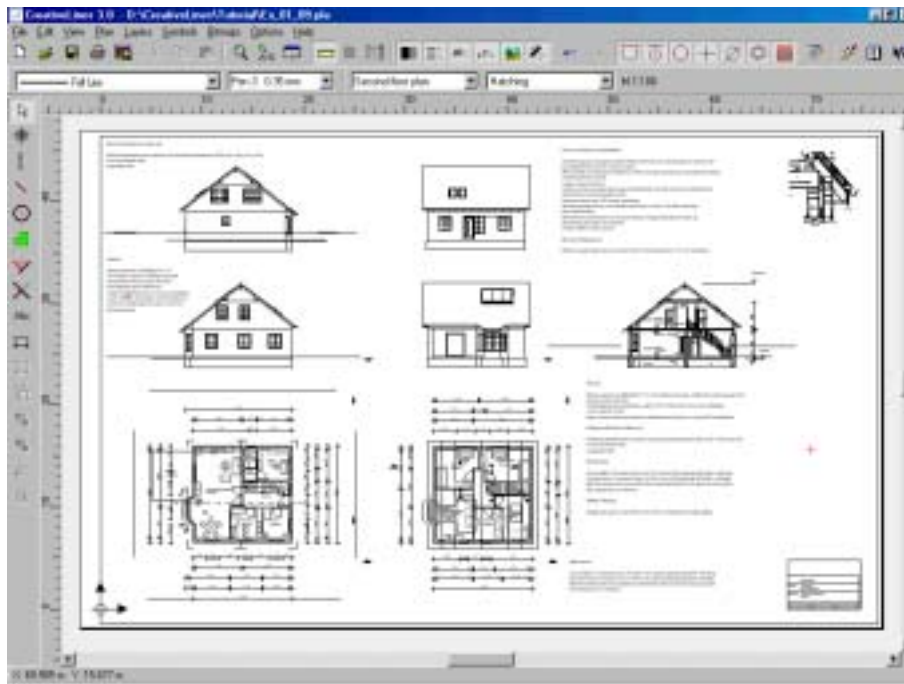
The development kit required to develop macros using Visual Basic or C++ are available from Online Warehouse Ltd for a small fee. Please contact **Online Warehouse Ltd** for details.

## 29 CreativeLines

CreativeLines is an add-on application that gives you full control of your drawing layout and contents.

This product is ideal for anyone who wants to get the best out of ArCon's 2D plans, especially those wanting to create 2D drawings for planning applications and building regulations.

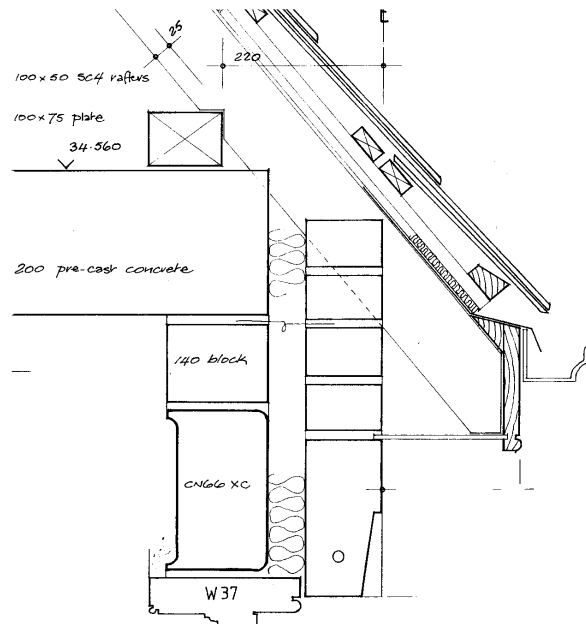
CreativeLines will import all views from ArCon and then allow you to present them on a single sheet.



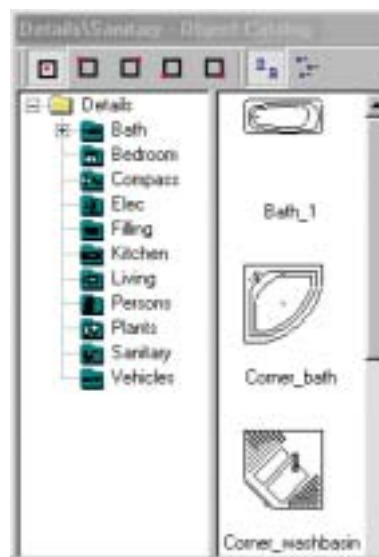
## The ArCon Project

---

You can also import 3D visualisation views from ArCon and insert together with your 2D plans. Sketches from other applications can also be imported to demonstrate building methods, however CreativeLines does have its own powerful set of drawing tools.



CreativeLines also contains its own extensive set of 2D symbols.



## 30 Appendix

If there is a topic that you would like to be explained, then please email [support@onlinewarehouse.co.uk](mailto:support@onlinewarehouse.co.uk) . If you would like to share your own hints and discoveries then please also email the above.

Also see the ArCon Forum for contact with hundreds of other ArCon users.

Visit <http://www.onlinewarehouse.biz/cgi-bin/forums/ikonboard.cgi>

## 31 Addendum

Dormer Dialogs

### **ArCon 6.5**

**With gutter** should be **With gutter break**

Set this option to produce a break in the roof and gutter