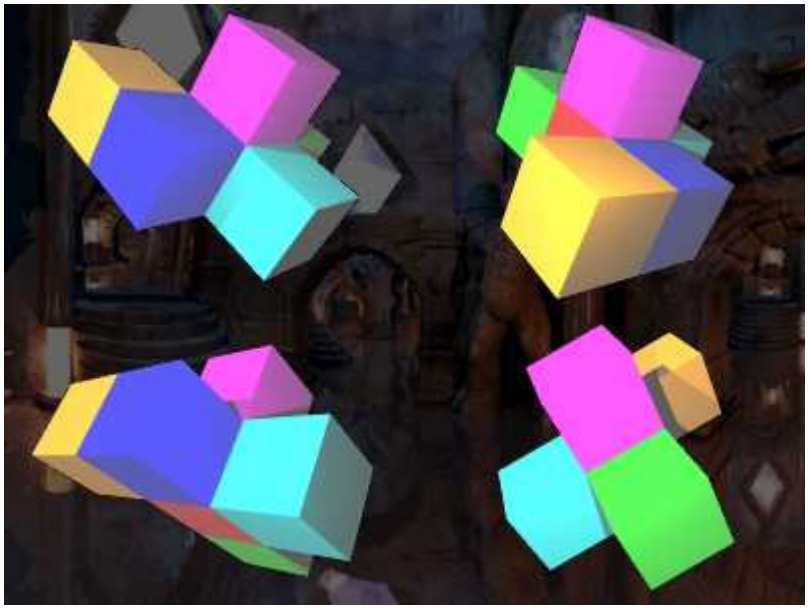
WINGS3D Mini Tutorial

How to make a building shape for panoramic render

by **David Brinnen**
December 2005

HTML Version
by **Hans-Rudolf Wernli**

Part of «Dungeon Dimension»
in the background >



— Introduction —

Moving the Camera

To move the camera in the X- and Y-direction, click on the centre mouse button and move the mouse around carefully. Just click the left mouse button to freeze the scene. To move the camera in the Z-axes, press the centre mouse button and move the mouse. If the button is released, the camera is in the X/Y move mode and you have to left click to freeze the scene.

Selecting and Deselecting

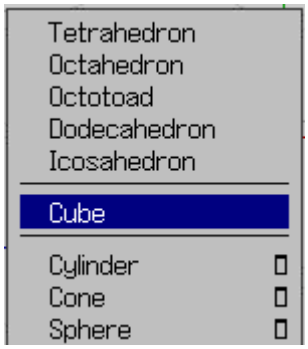
When the mouse is near a selectable part of the object, that part becomes green. When clicking the left mouse button, that part becomes red, which means it is now selected. When clicking on a selected part, it becomes unselected. To deselect everything, hit the space bar on the keyboard.

About this tutorial

The cubes in the picture above were assembled with Bryce. This can be done very easily. The disadvantage is that the six cubes are closed against each other. Walls and windows have to be cut open with elaborate boolean operations. It is more simple to construct the outlines of this body in Wings as a single object. Thus, the «rooms» are open, the camera can see everywhere: one single hollow object.

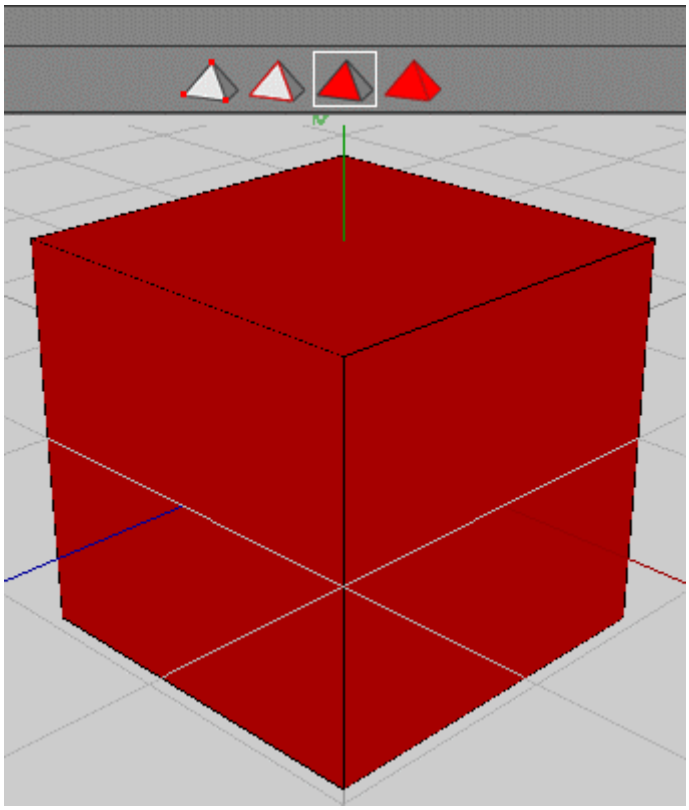
Wings & Bryce

The object will be constructed in Wings and this will be shown here. The object will be exported and imported into Bryce. The camera will be positioned inside the building and the rooms will have to be lit. The whole scene will be rendered as a 360° panorama. This, too, will be shown here. The rooms should be populated, the walls and the floor given the appropriate materials. This last part is left for the reader to accomplish.

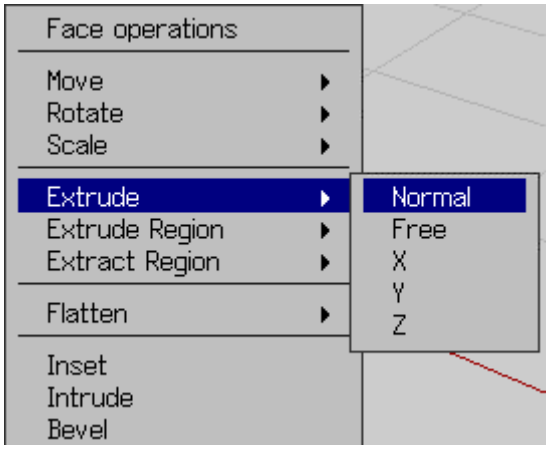


Let's go

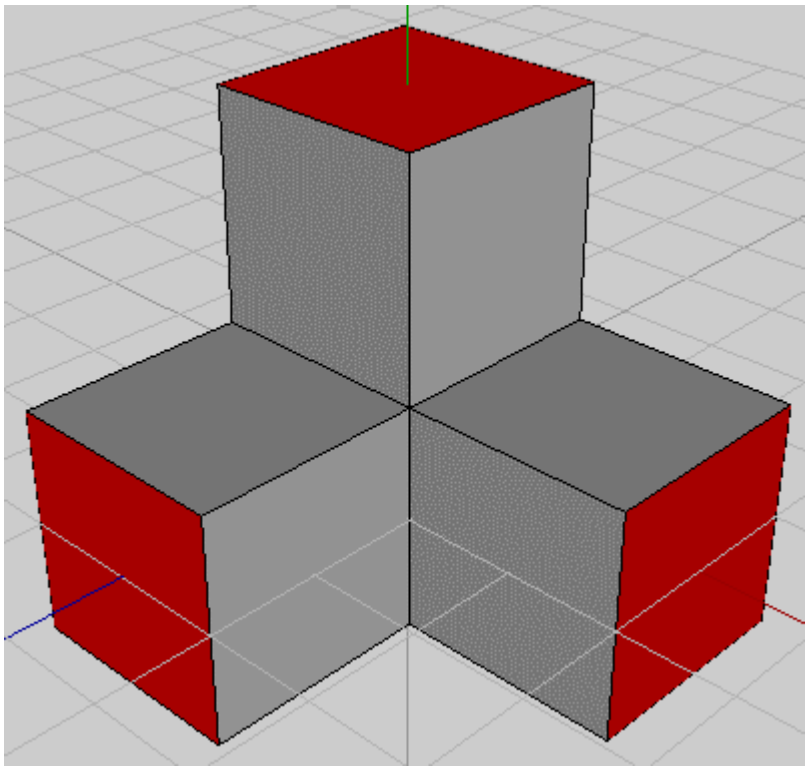
Start Wings and right click in the empty world. The menu shown at left opens. Select **Cube**.



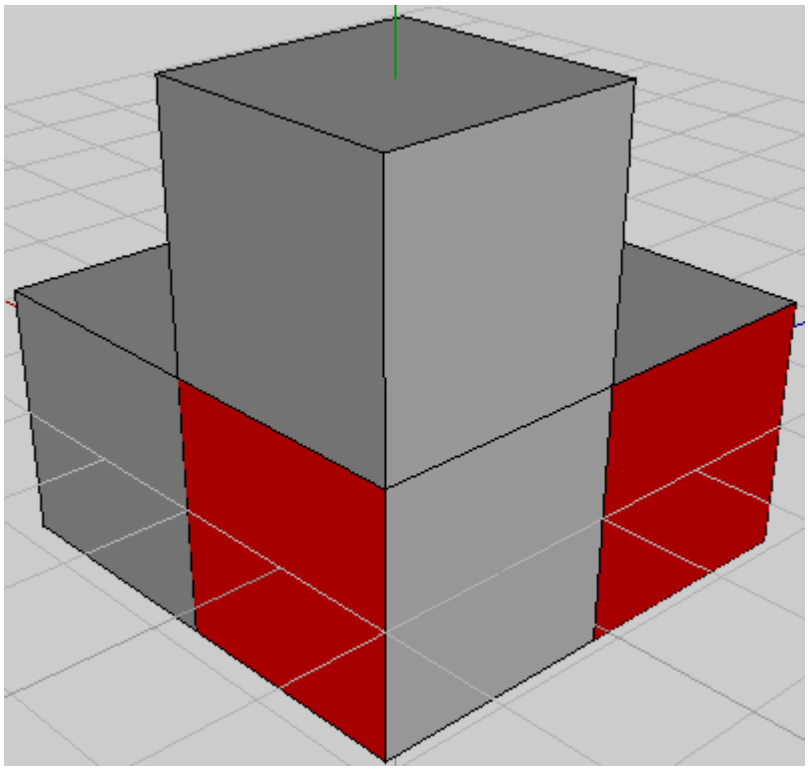
Make sure the pyramid with one red face (faces) on the menu bar on top is selected. Select the three visible faces of the six faced cube (left click).



Right click to open the context menu. Here, select **Extrude** – **Normal**.

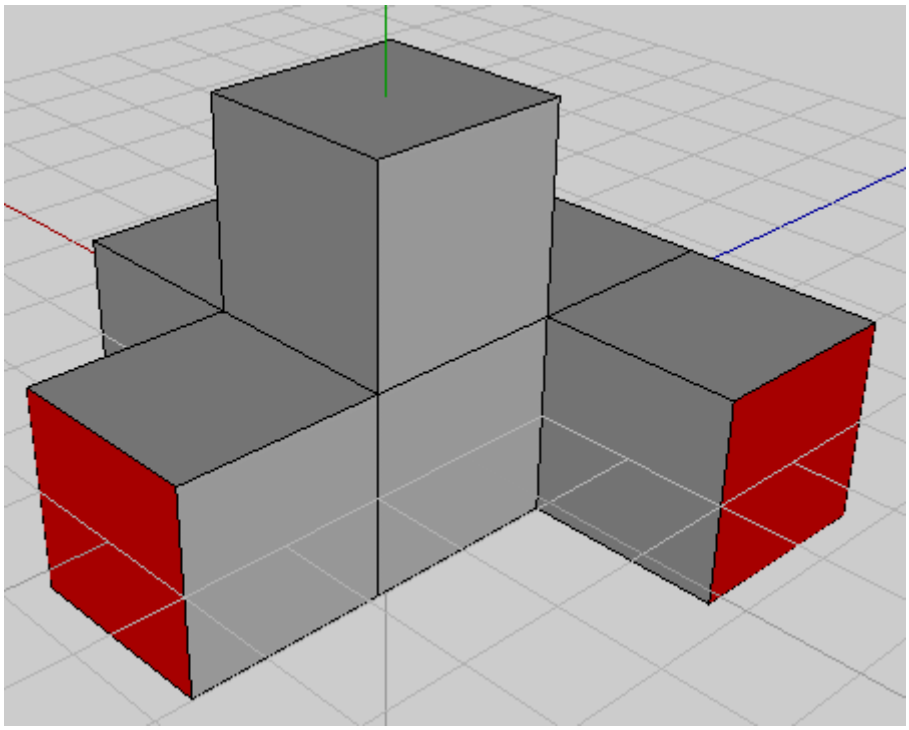


Push the left mouse key and move the mouse. The three selected faces move in or out. If you press the [Shift] key, the extrude function works in steps. Move the mouse until three additional cubes of the same size of the original one appear, then, let go the mouse key, afterwards, let go the shift key. The object shown at left should be created.

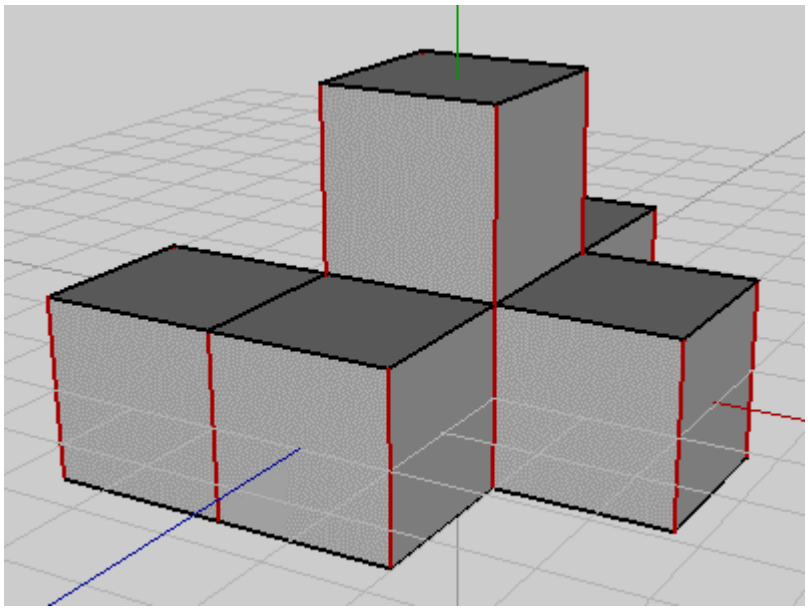


Hit the space bar to un-select all faces. There are two more faces that have to be selected. Click on the centre mouse button, then move the mouse to move the object into a new position. If you have the desired view angle, click the left mouse button to freeze the position.

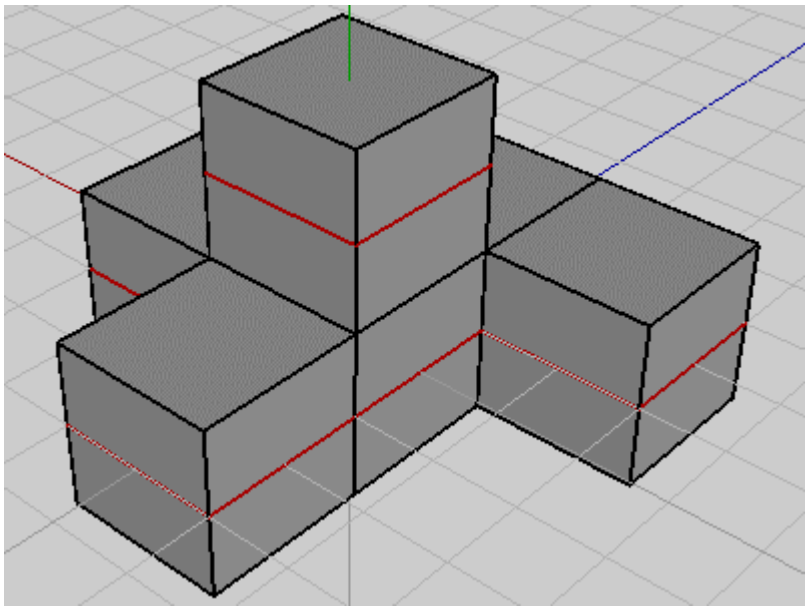
Now, select the two faces shown in the picture at left and then **Extrude** – **Normal** as shown above one more time.



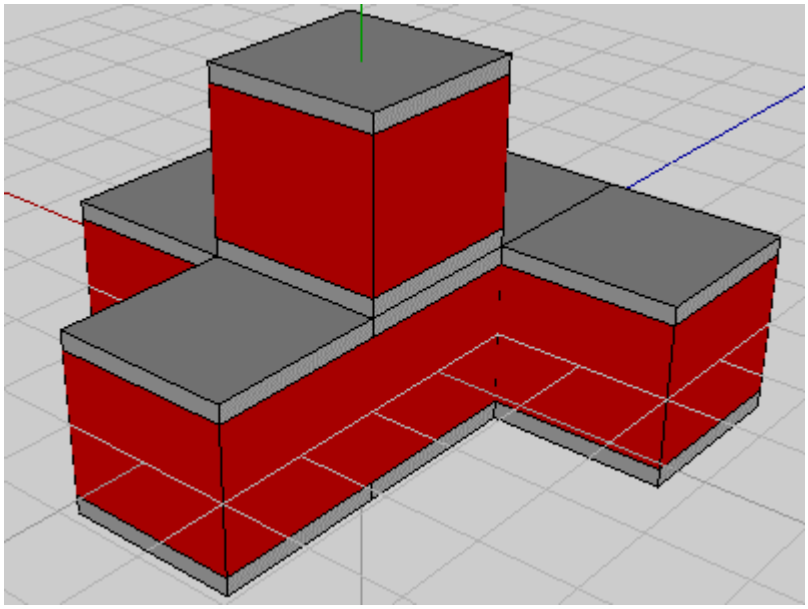
The object should now look as shown in the picture at left. Hit the space bar to unselect all faces.



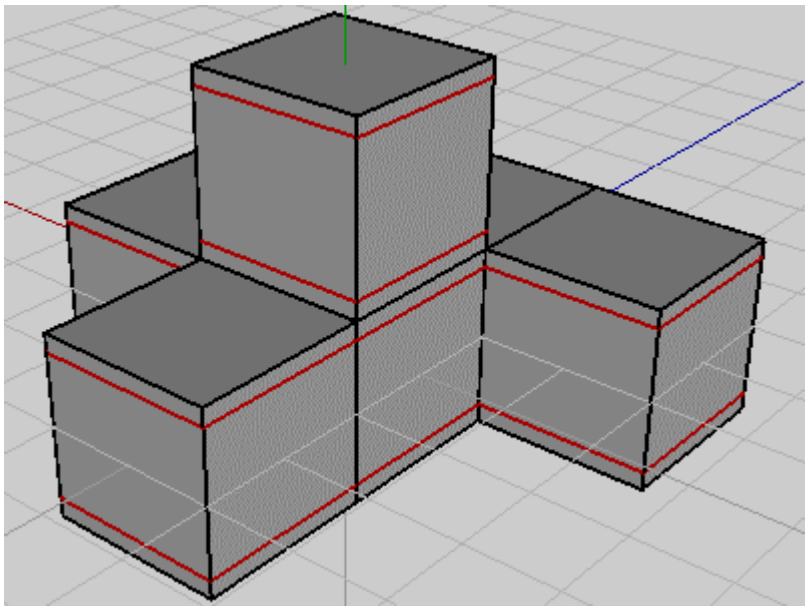
Select the pyramide with the red edges in the menu bar above. Now, select all upright or vertical (perpendicular) edges. There are 12 in total. You will have to rotate the object to access all of them.



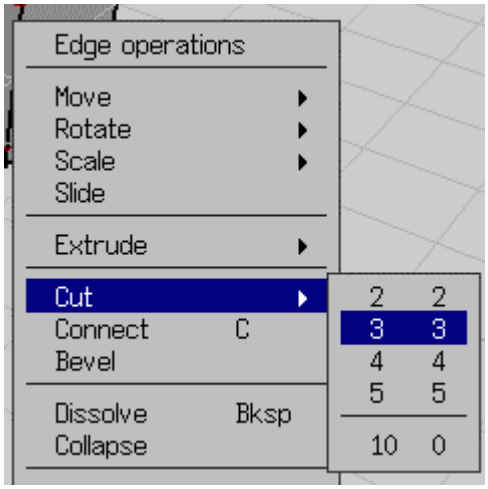
When all the 12 vertical edges are selected, hit the **c** key — alternately open the context menu with a right click and select **Connect**. This selects the horizontal lines shown in the picture at left.



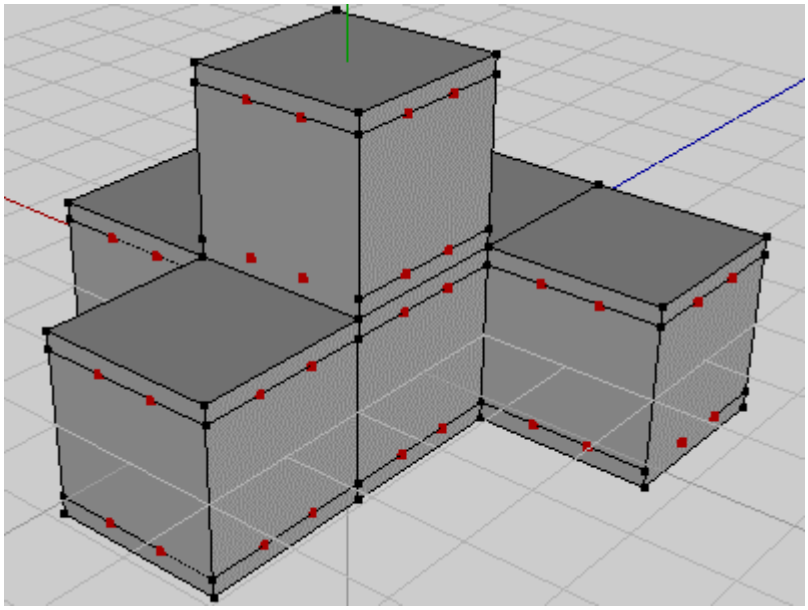
Open the context menu with a right click on the mouse and select **Bevel**. Move mouse while holding down [Shift] key to have matters proceed in a stepwise manner. If the ratios look as shown in the picture at left, left click on the mouse, then let go the [Shift] key.



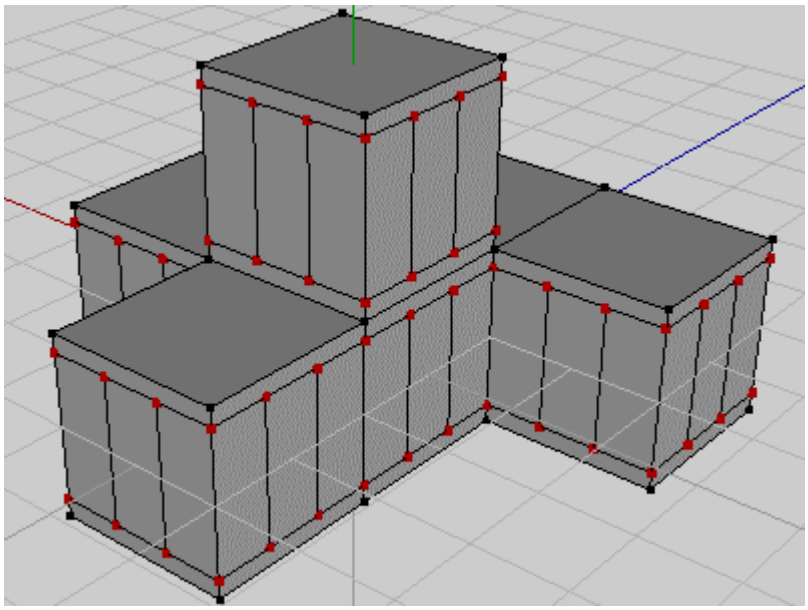
Now hit the key **L** to select the upper and lower lines. You may also access this from the menu bar at the top: from **Select** go to **Edge Loop** and again to **Edge Loop**.



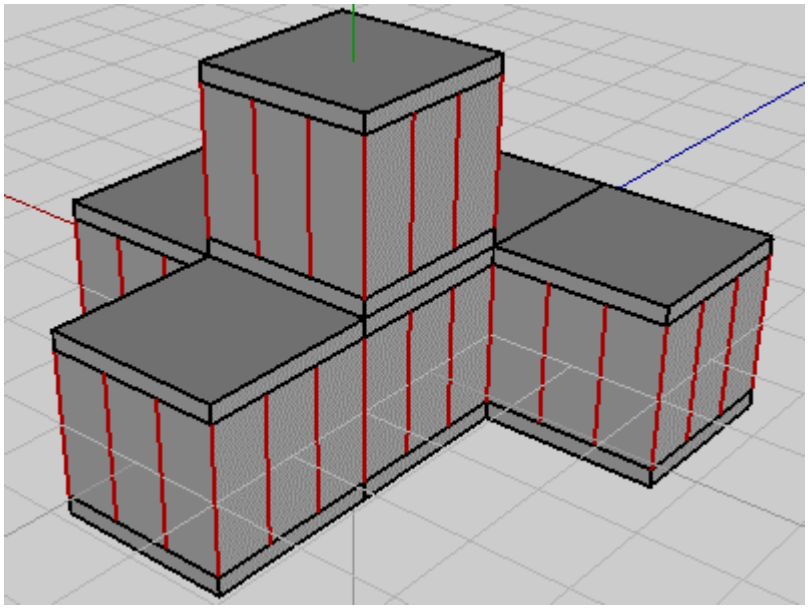
Right click to open the context menu and from **Cut** select **3 3**.



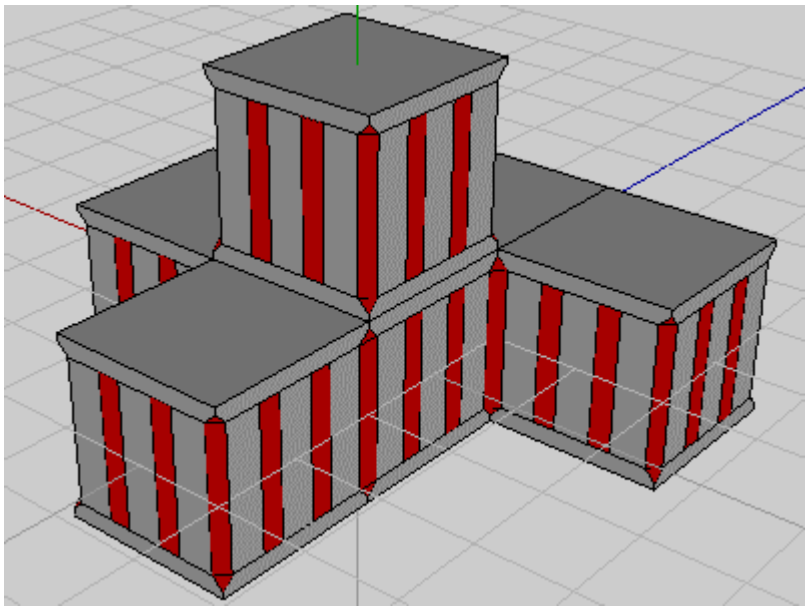
The function performed above divides the upper and lower lines into three equal long parts.



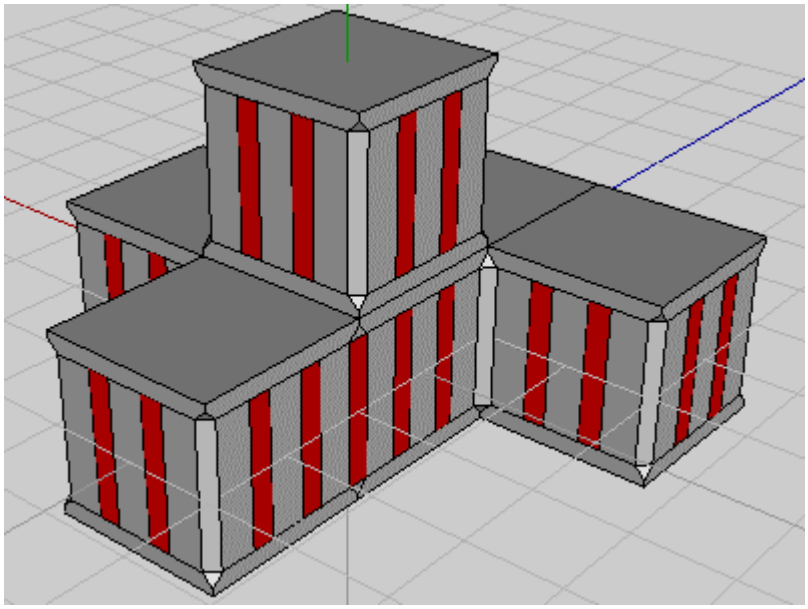
Now connect the dots with **c**.



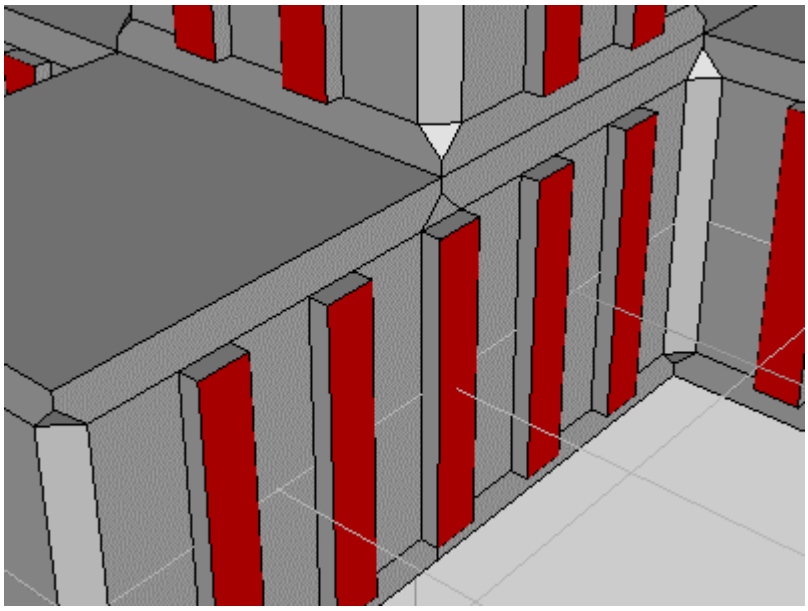
Hit the space bar to deselect the dots. Select the pyramide with the red edges (the one with the red corners is selected). Now mark one of the new vertical lines and hit **i** to select all identical lines on the object. You could also go by **Select** from the menu bar on top and click on the option **Select Similar**. The **I** stands for identical.



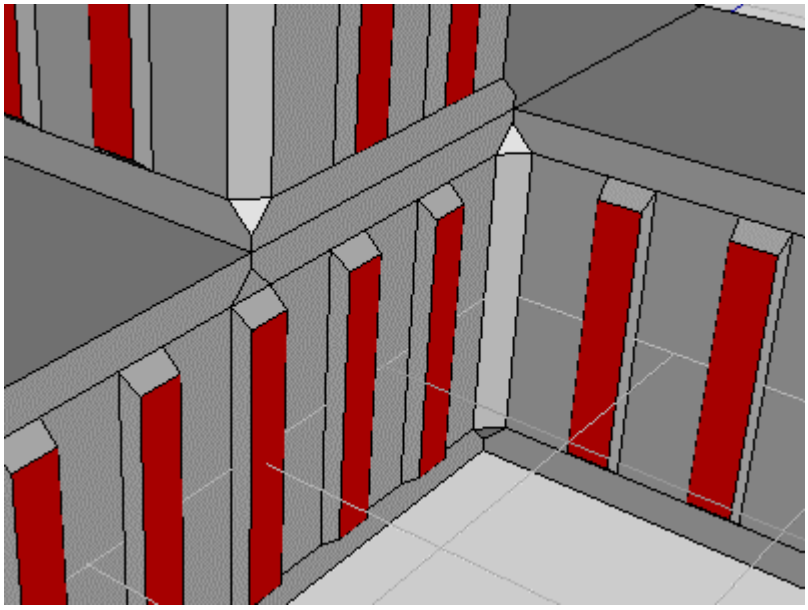
Open the context menu with a right click and select **Bevel**. Move the mouse while holding down the [Shift] key. If it looks about the same as at left, left click on the mouse, then let go the [Shift] key.



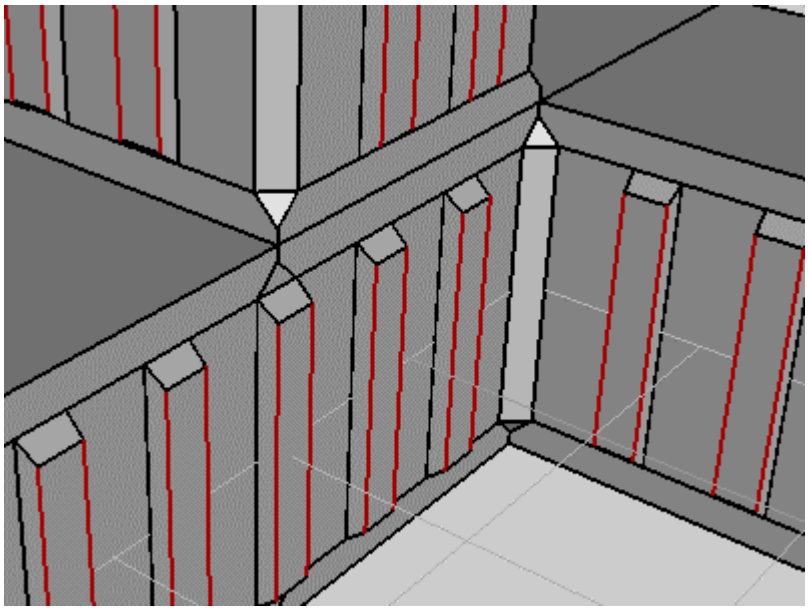
Hit the space bar to unselect everything, then mark one of the new faces (not one on the edges). Then, press the **i** key to select all identical faces.



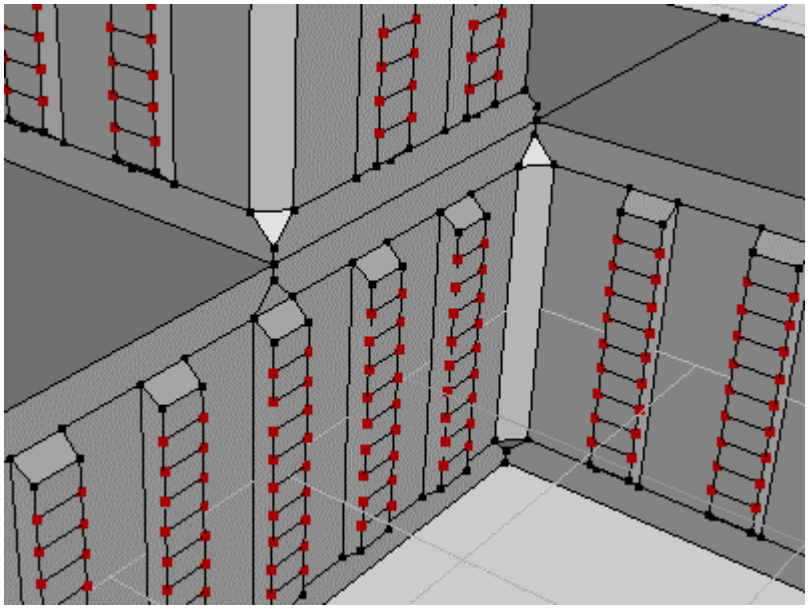
Open the context menu and select **Extrude** with the **Normal** option. Hold down the [Ctrl] key and move the mouse until the faces appear as extruded as shown at left.



Select **Scale** with the option **Normal** from the context menu. Hold down the [Ctrl] key and move the mouse until the result shown at left is attained.

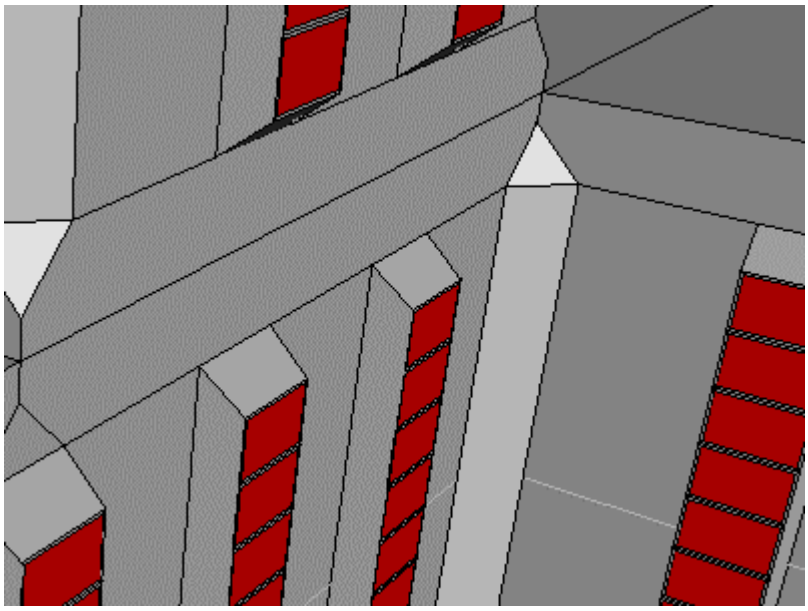


Hit the space bar to unselect the faces and select the pyramide with the red edges from above. Now mark one of the vertical lines and hit **i** to mark all identical ones.



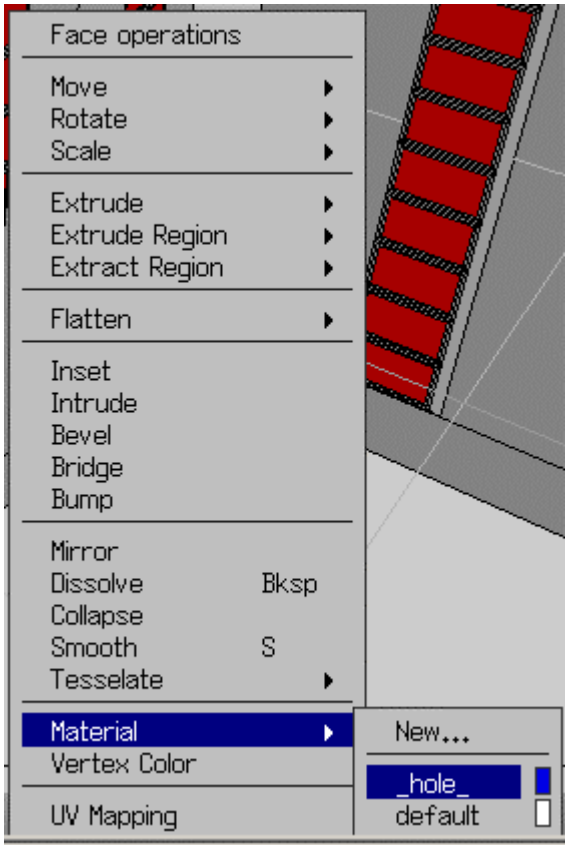
Select **Cut** with the **10 0** option from the context menu. We had something like that before already.

When you see the red dots, hit the **c** key to connect them.

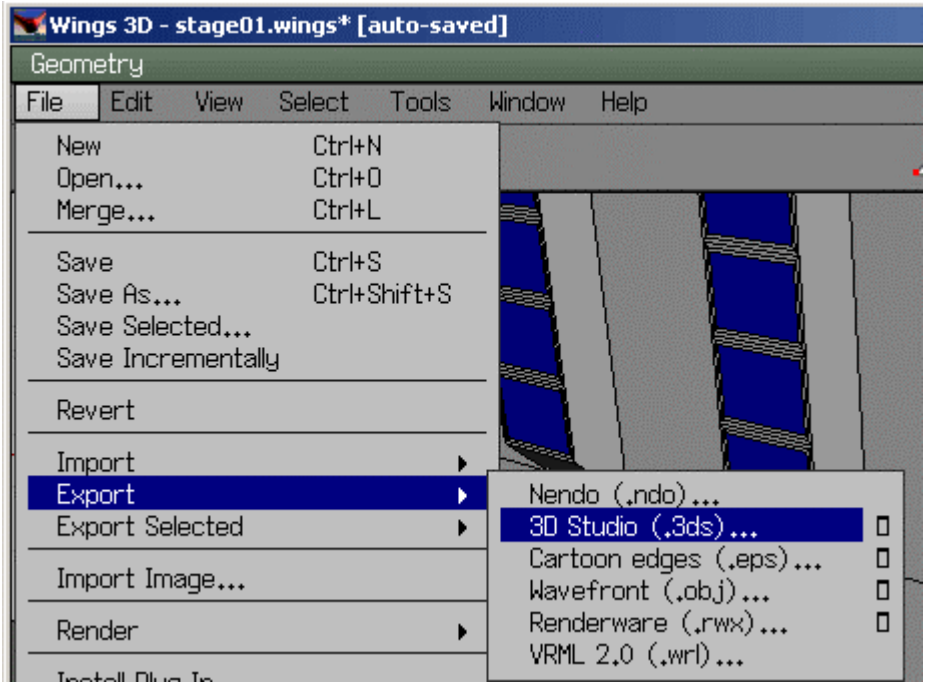


Unselect everything by hitting the space bar, then select the pyramide with the red faces. Mark one of the new small rectangles and hit the **i** key to mark all identical ones.

Select **Intrude** from the context menu. Hold the [Ctrl] key and move the mouse until small spaces appear around the red rectangles.



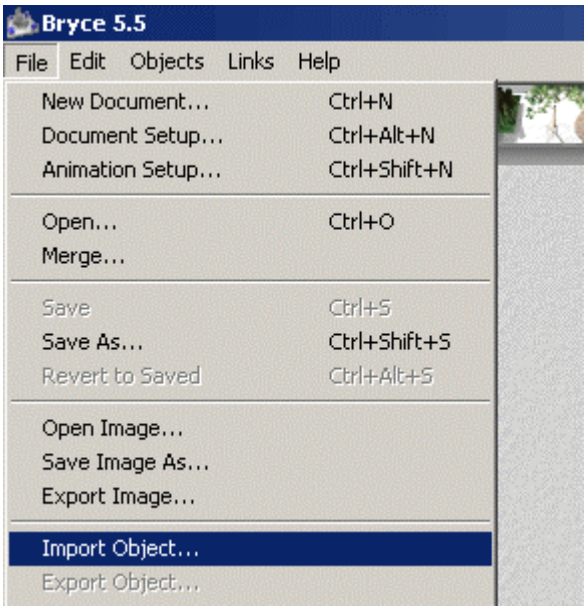
Select **Material** with the option _**hole**_ from the context menu. After unselecting all faces, the «windows» appear blue, or in the colour shown right to _hole_ in the context menu.



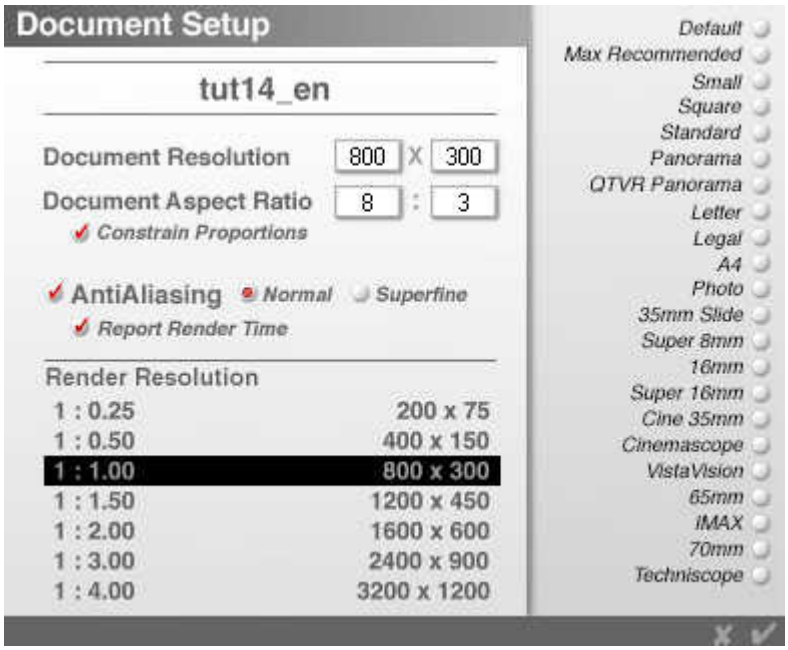
When everything is unselected, open the drop down menu **File** and select **Export** with the **3D Studio (.3ds) …** option and export the «building».

This concludes the work to be done in Wings3D.

The Part in Bryce



Start up Bryce and import the building. If a different 3D program is used, the building may be imported there as well, of course. This tutorial assumes Bryce 5.x be used.

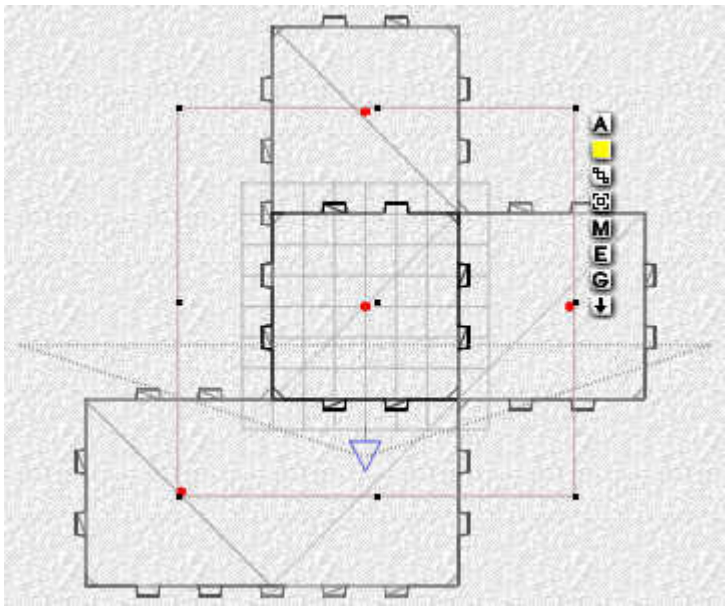


This should become a panorama, hence we select a format of 8 wide by 3 high.

In order to get an idea, the FOV (Field of View) is set to 180° (second arrow from top «Edit Current Camera»).

Finally, «360 Panoramic Projection» has to be selected (lowest arrow).

When objects have to be placed inside the building, the FOV of the camera may be changed as desired. The FOV of the camera has no influence when rendering a panorama.

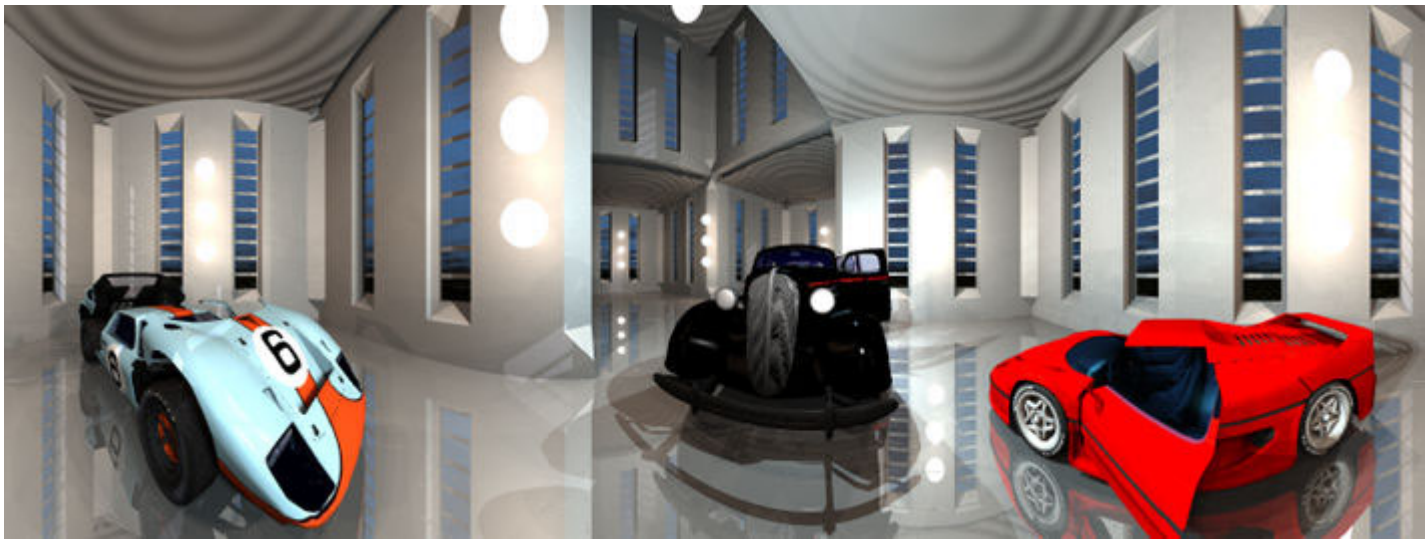


Enlarge the imported «Building» until the surface has a size of a bout 400 x 400 Bryce Units.

Left the view from top. Place the camera somewhere inside the building. A better places can be found later. Also, distribute some radial lights (here red).

That is how the rendered panorama looks like. Walls and floor are boringly grey, the lighting not interesting. But it renders fast. Now, the best camera position should be found. Then, the position of the lights have to be determined. Once walls and floor (the ground plane) have been given materials, the render time increases. When the positions for the lights are fixed, their attributes may be adjusted individually later, when all additional objects are at their places. And — don't forget to give the light outside the building some consideration as well.

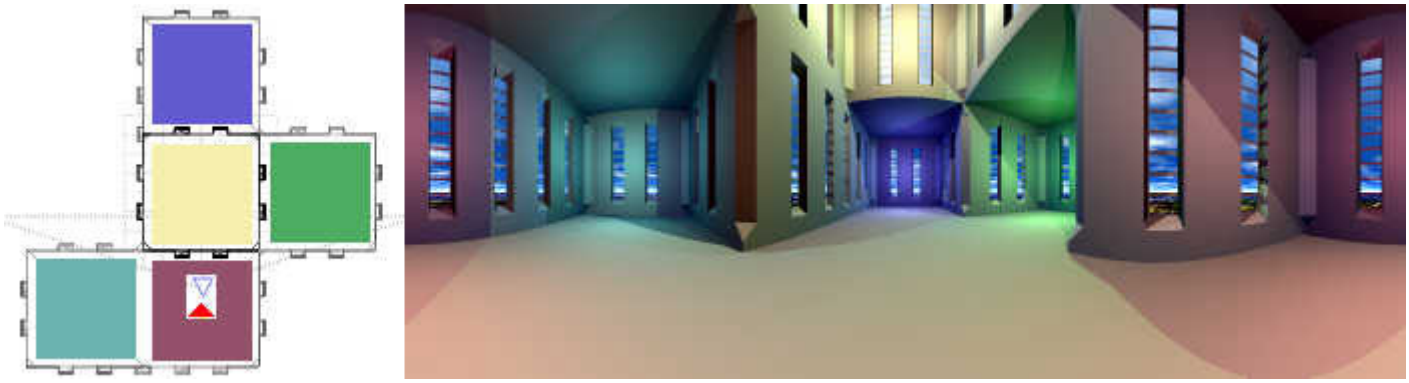
Here two examples how the camera position controls what we will see. In the picture above, the camera is set near to the floor, in the lower one it is in the «tower».



The hall used as an exhibition for cars. Attention: objects near the camera will appear distorted — this is demonstrated in this example. The camera should be set horizontal, otherwise the walls will appear slanted. The cars were imported from DAZ|Studio (www.daz3d.com) and are, from left to right, 1967 GT40, 1936 AM Sedan and F50.

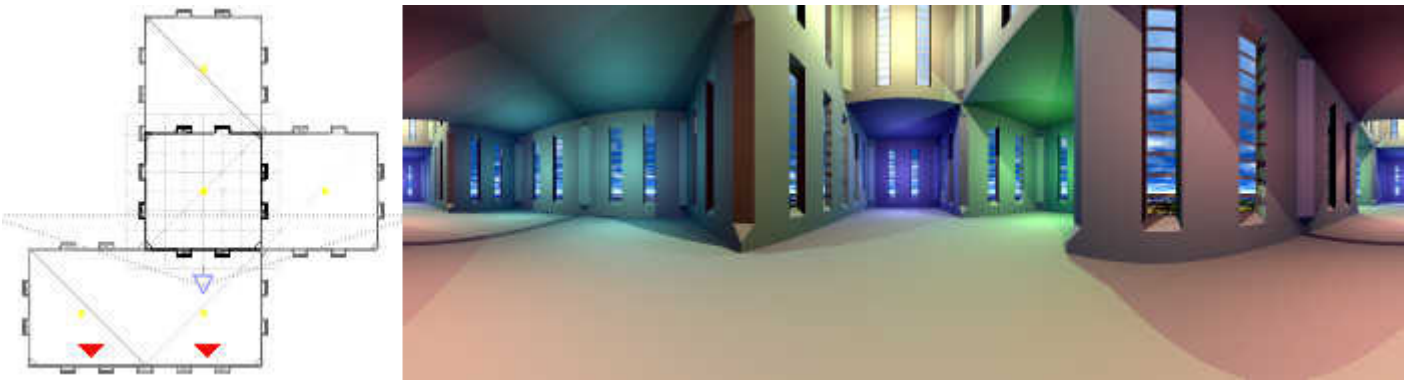
Enlarging the Rooms with Mirrors

If mirrors are placed on walls in rooms, we get the illusion of larger rooms. What is true for interior design is also true here. In Bryce, mirrors are 2D-faces without a texture, all material channels put to 0 except Reflection is set to 100.



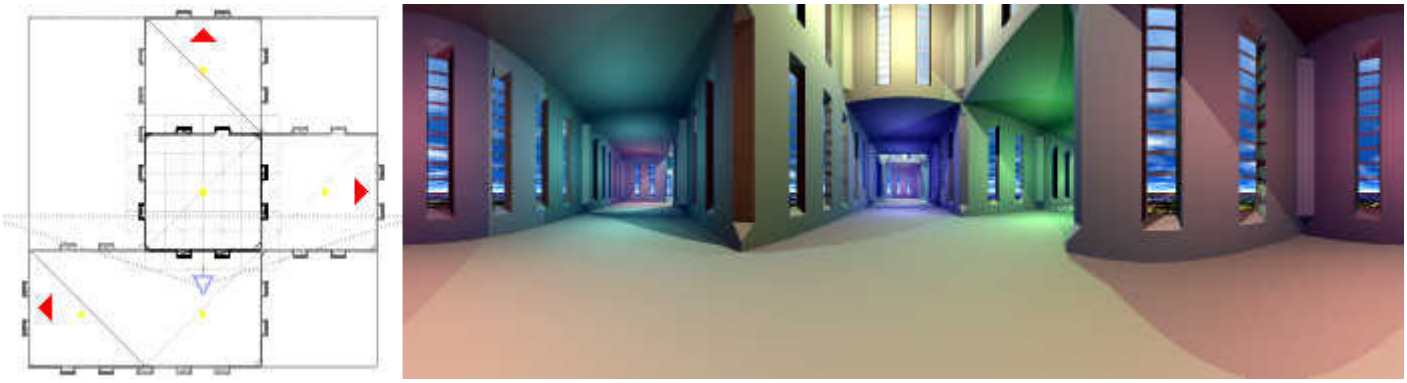
The picture above shows the rooms constructed in this tutorial without mirrors. A coloured light source is placed in each room and the plan shows which room got which colour. The red arrow points to the camera. Thus, we don't get disoriented.

In the picture below, mirrors were placed on the walls identified with red arrows.



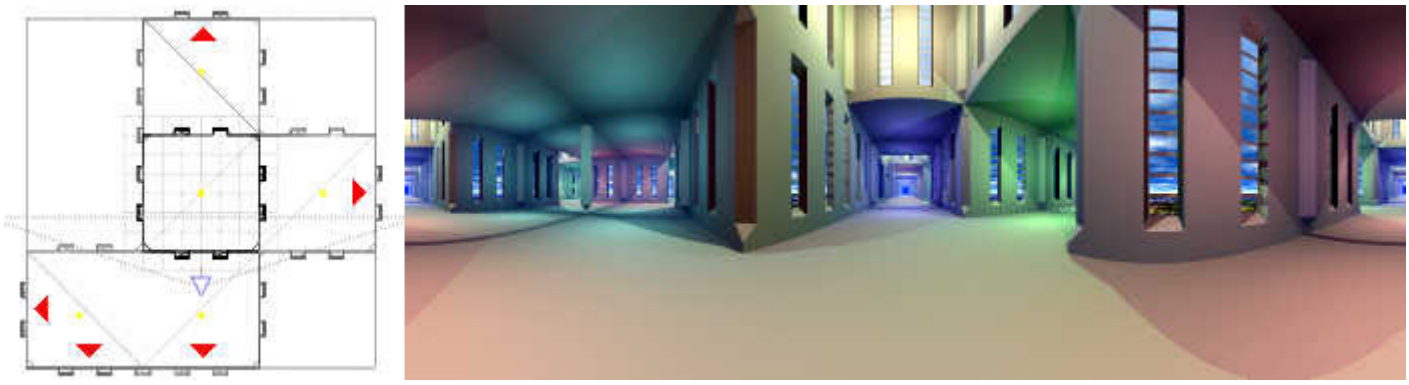
The mirrors are placed at the back of the camera. Since this is a panoramic render, they show their influence at left and right.

Depending on which walls mirrors are placed to, the effect changes, as we would expect.



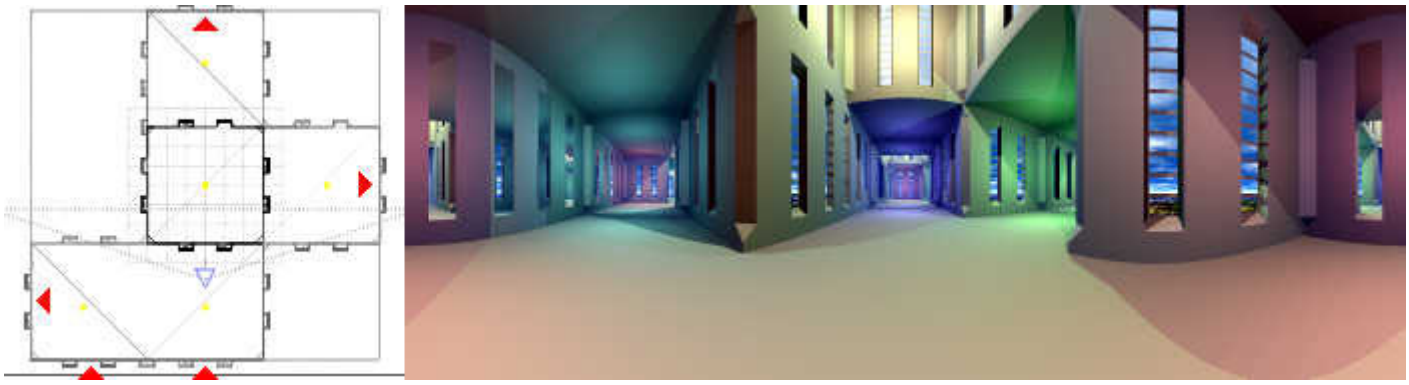
Here, we get the impression, the rooms would extend to long corridors.

In the following picture, both mirror groups are introduced and we are left with the illusion of being in a really large building. The picture is too small to notice: at the end of the corridors is a black rectangle. The Maximum Ray Depth in the Render Options might have to be increased from the default 6. Then, the corridors extend even further.



The coulours with which the individual rooms are lit help us to comprehend which room reappears where in a reflection.

It is important that the mirroring 2D-Faces are placed very near to the wall, else the joints get too obvious. If a wall is broken by a door or window, the mirror may be placed behind the wall.



Both mirrors in the back of the camera (lower part of plan) were set behind the inner surface of the wall. Therefore, the wall is no mirror anymore, but the windows are now. You get a different impression.

If mirrors are used, you have to be careful where you put the furniture in order not to give away to easily that mirrors were used. If the mirrors are placed cunningly enough it will be difficult to determine where they are, even though the rooms are populated by objects. Mirrors may be turned, slanted or rotated. A few degrees may have a dramatic effect already.

German and HTML Version by Horo - 27. December 2005.