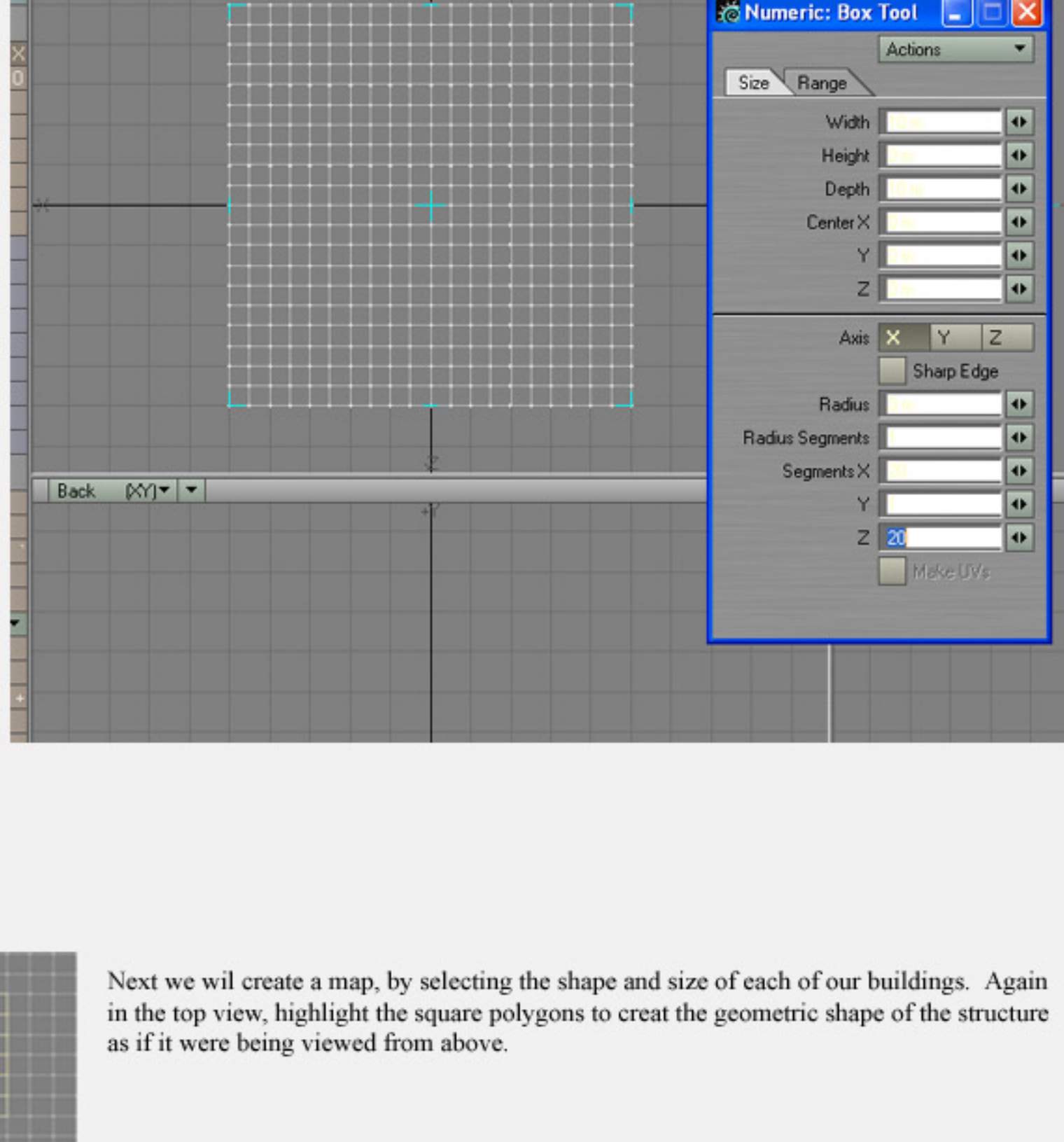


# Modeling and Surfacing a simple City

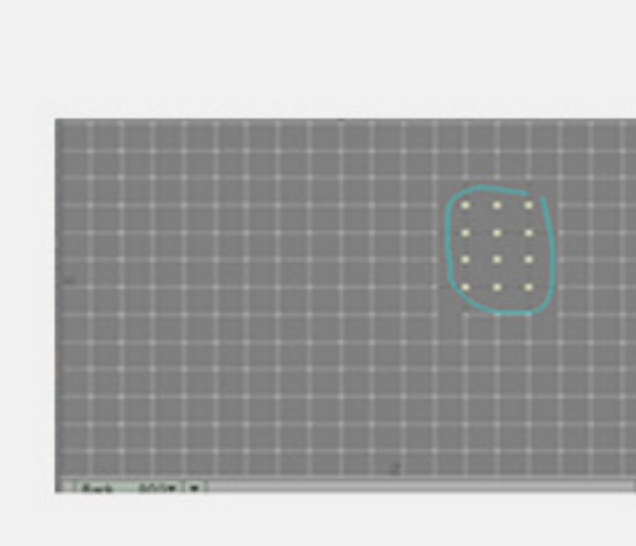
by Chris Valleroy

## Creating a Cityscape.

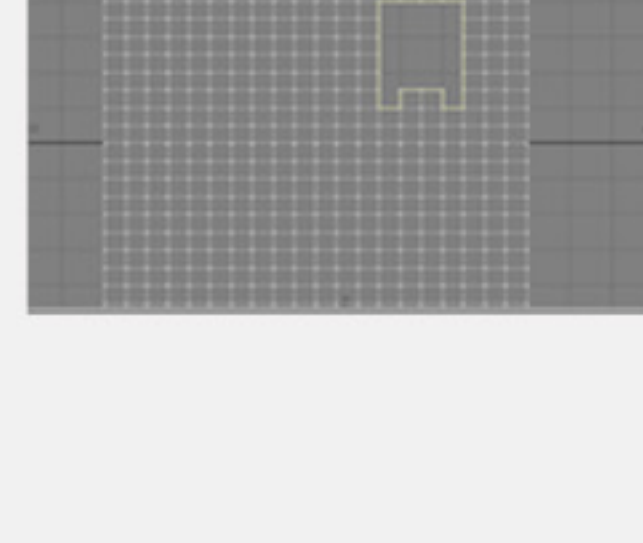
First, create a plane using the box tool in the top viewport. Using the numeric control panel to give specific dimensions. (this especially helps if you want to create very detailed buildings.) I created this plane, 10 meters on the X-axis by 10 meters on the Z-axis with 20 segments on each.



Next we will create a map, by selecting the shape and size of each of our buildings. Again in the top view, highlight the square polygons to create the geometric shape of the structure as if it were being viewed from above.



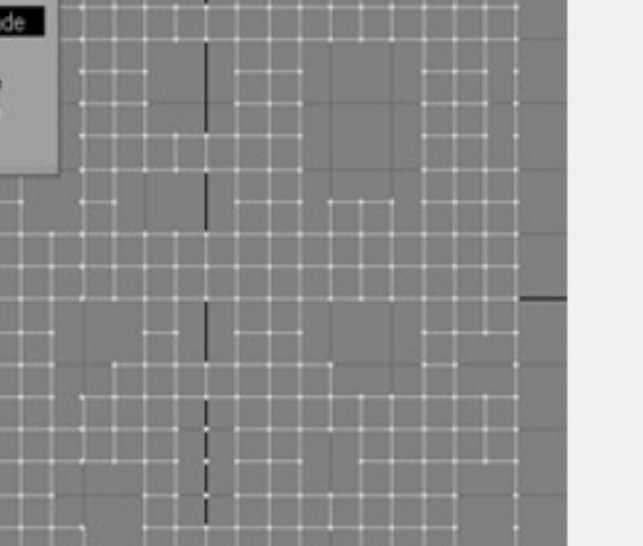
Once you have your shape selected, use the merge polygons tool under the construct tab to create one solid polygon.



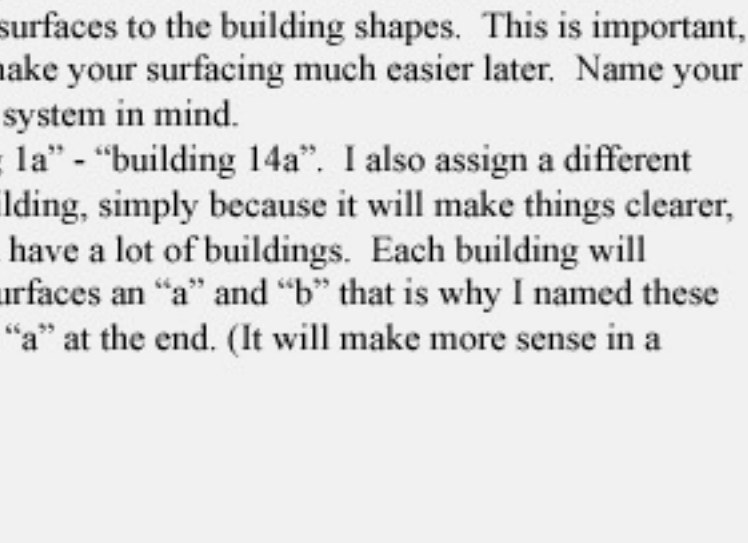
Next, you'll want to get rid of the left over points since they will only clutter your model. Highlight them and delete them.



You should end up with something like this. Continue this process until your map looks satisfying. (Keep in mind to leave open some space for streets which will be our next step.)

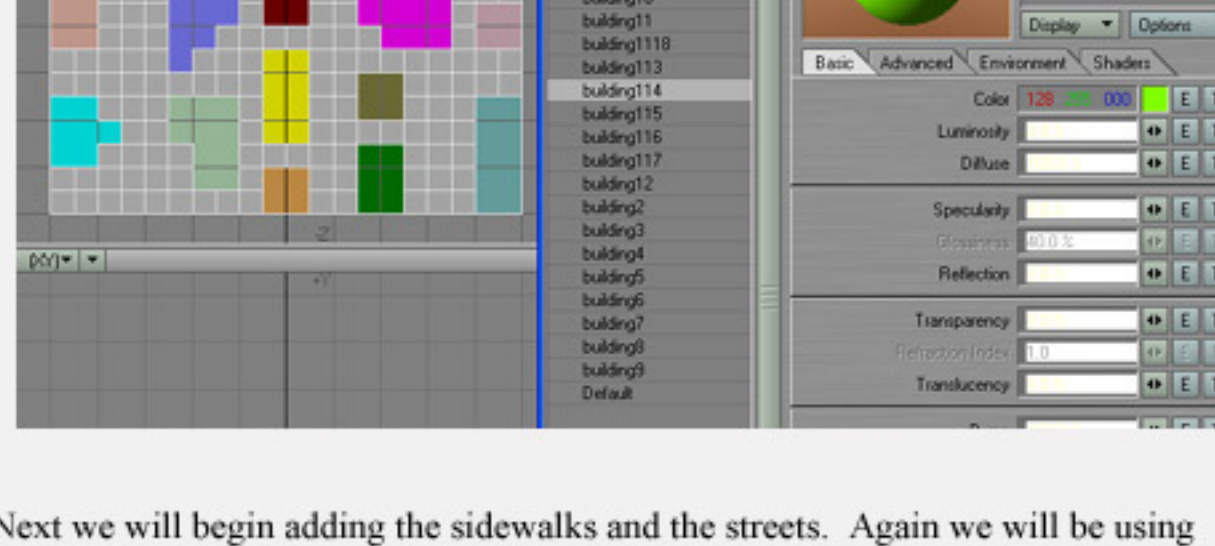
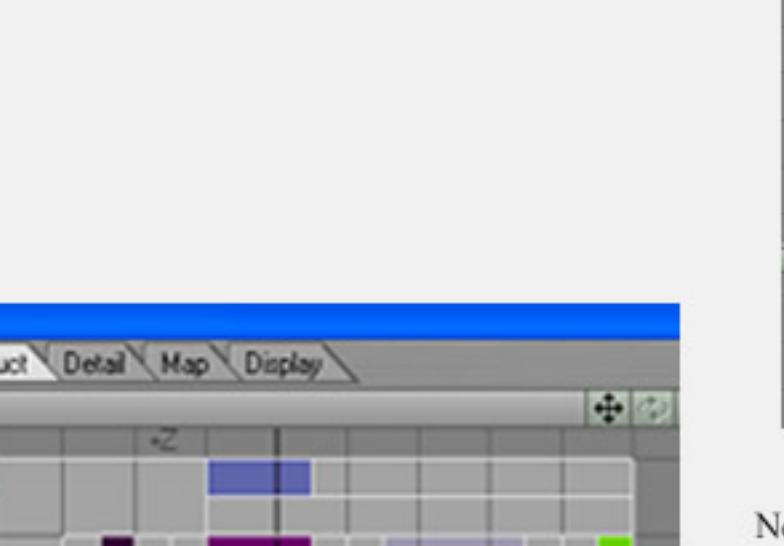


Depending on how dense you want your city, you should end up with something like this. Now, you'll want to switch the viewport to Wireframe Shade view mode. It will make things easier as we go.



Once switched, your view should look like this. Now we will begin assigning surfaces to the building shapes. This is important, because it will make your surfacing much easier later. Name your buildings with a system in mind.

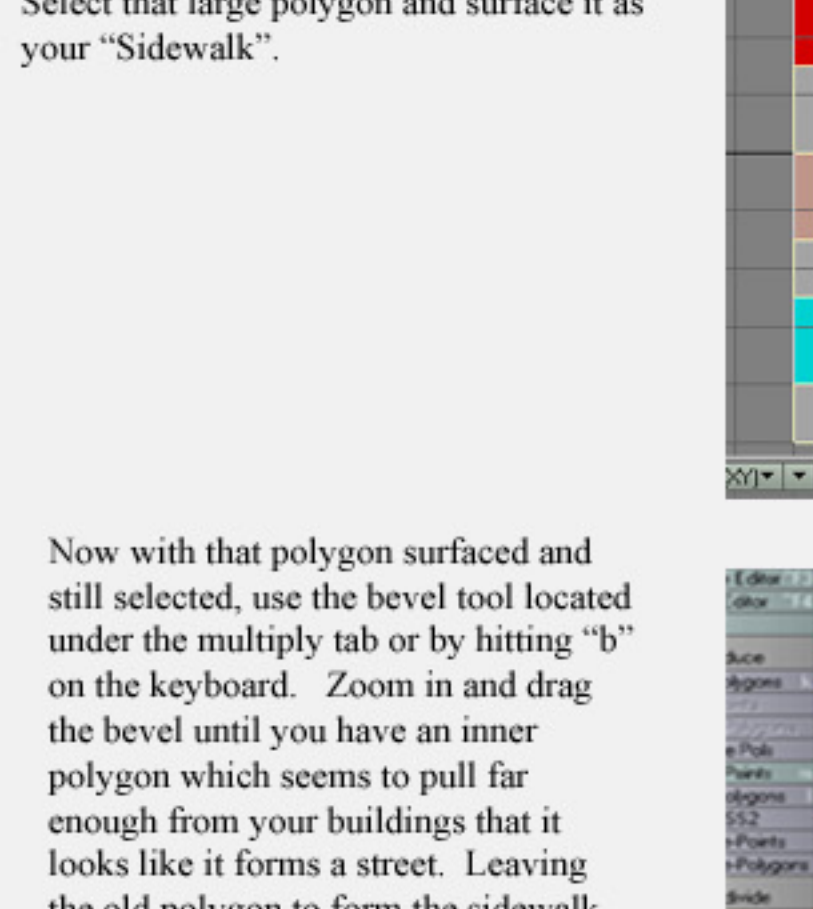
I used "building 1a" - "building 14a". I also assign a different color to each building, simply because it will make things clearer, especially if you have a lot of buildings. Each building will consist of an "a" and "b" that is why I named these surfaces with an "a" at the end. (It will make more sense in a minute.)



Once the buildings are colored, your map will look something like this.



Next we will begin adding the sidewalks and the streets. Again we will be using the select and merge polygon method which we used to create the building shapes. Be careful not to simply select all the remaining polygons and hit merge polygons, it will cause some non-planars to appear. Instead select groups similar to the one shown, merge them and then merge those larger polys to one another. You should have less problems this way.

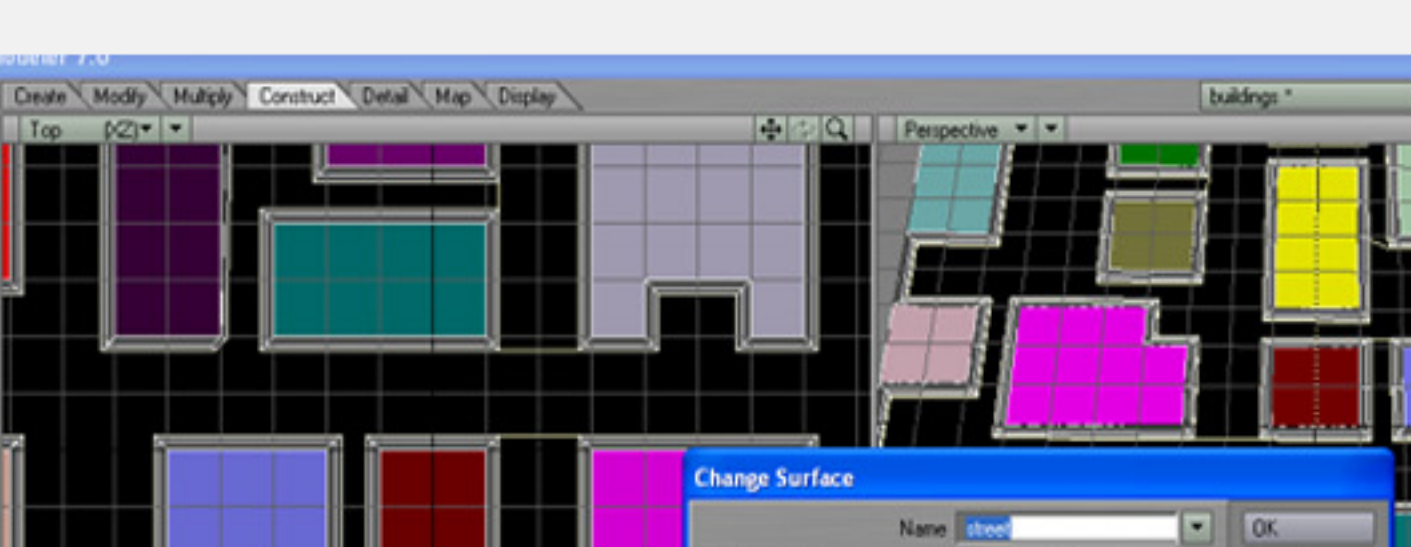


Once that step is completed, your map should look like this, with one large polygon for the street and sidewalk area. Select that large polygon and surface it as your "Sidewalk".

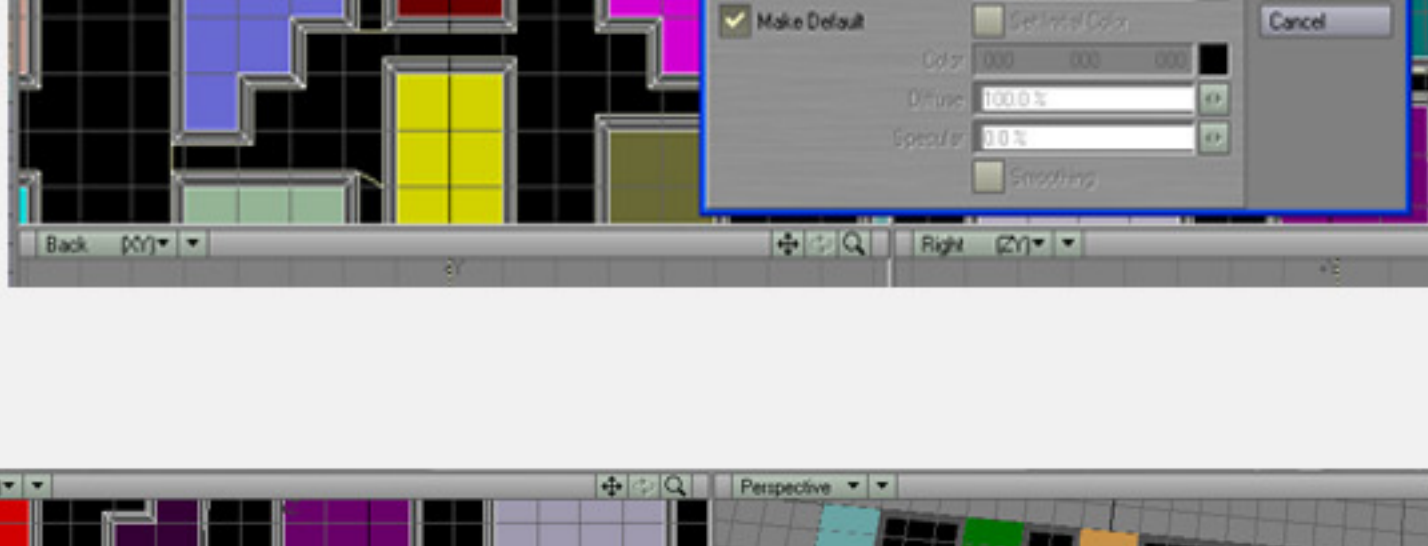


Now with that polygon surfaced and still selected, use the bevel tool located under the multiply tab or by hitting "b" on the keyboard. Zoom in and drag the bevel until you have an inner polygon which seems to pull far enough from your buildings that it looks like it forms a street.

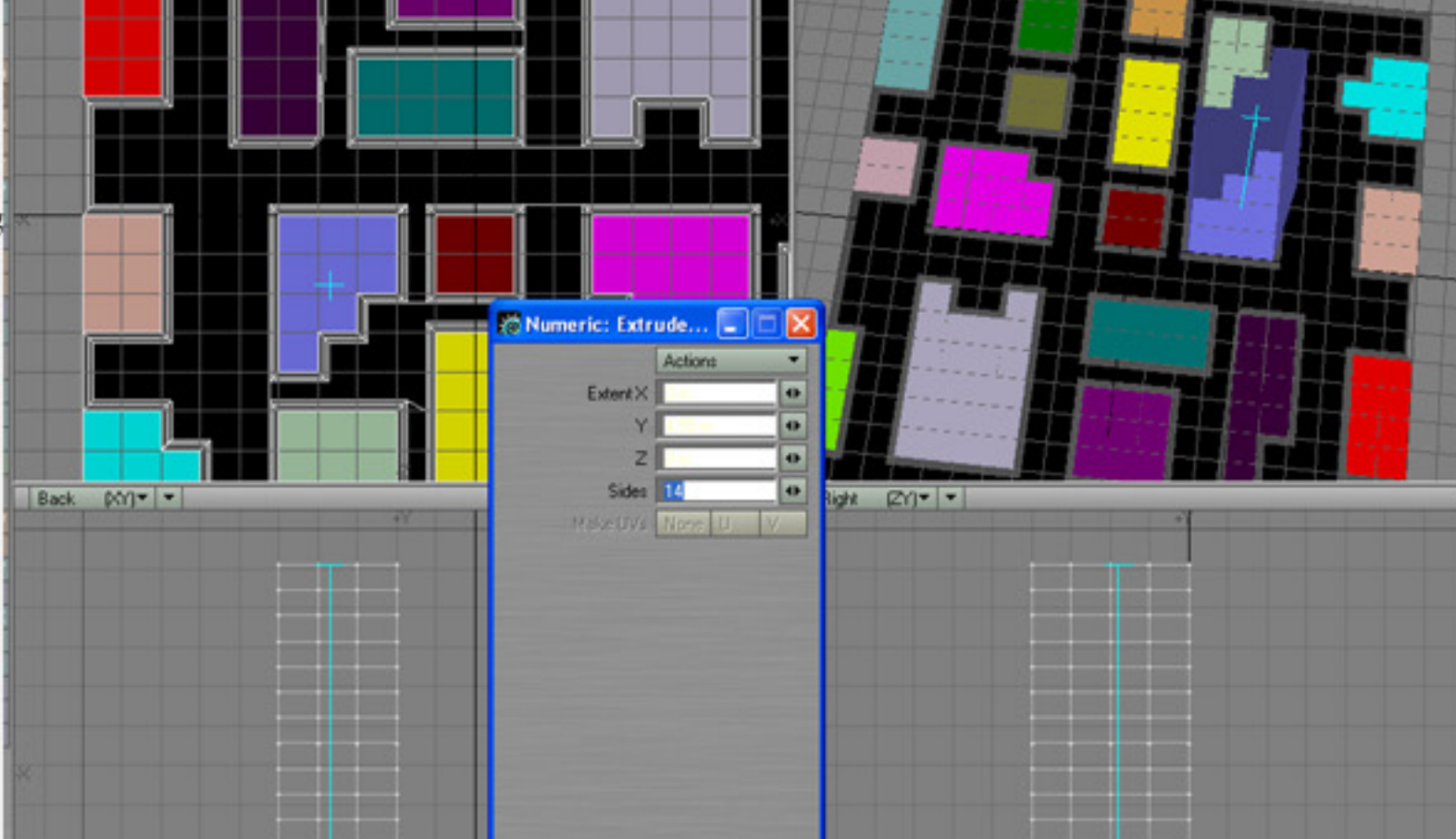
Once you're satisfied stop and click on the Smoothshift tool also under the multiply tab, click and drag and look in your back or side viewport to see how much a step you're creating from your sidewalk to the pavement. (This may be adjusted later, to fit your building height.)



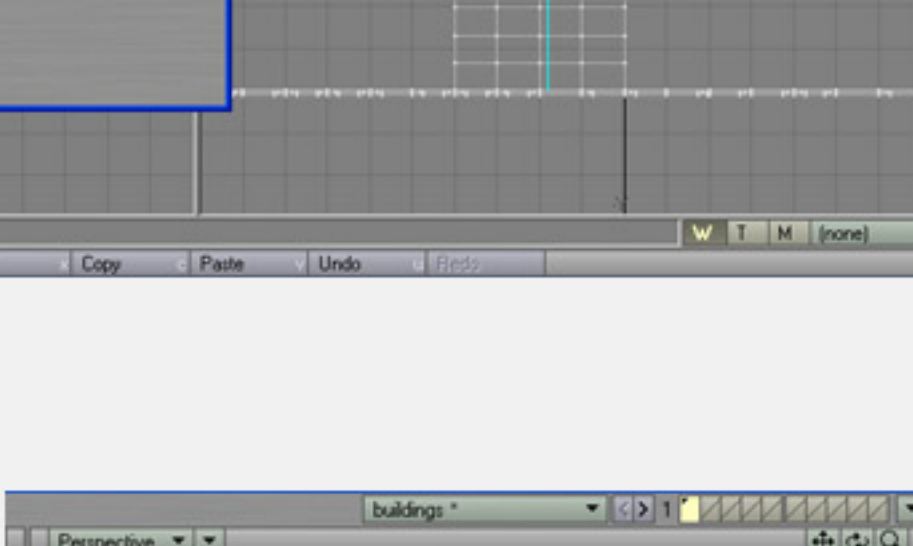
Once you're finished creating your step from the sidewalk to the street, with the polygon still selected, change its surface to "Street". Your map should resemble this one.



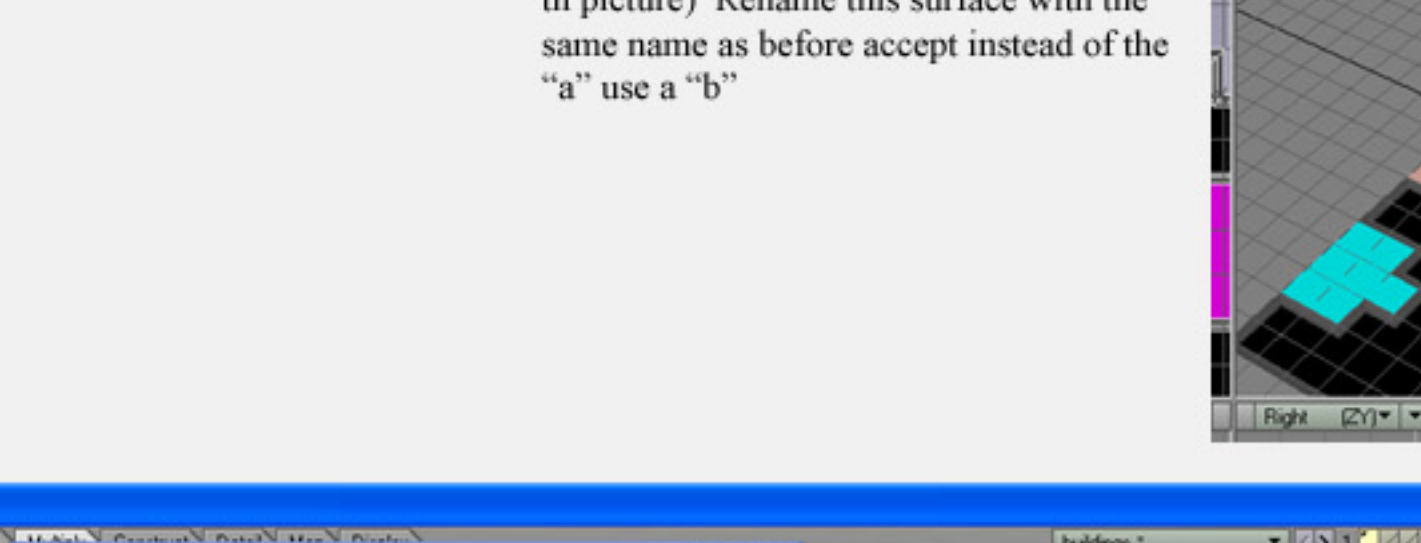
Now we take this map "UP". Select the building you wish to start with. Then go under the multiply tab and choose the Extrude tool. In either the back or side view, click and drag the building's selected polygon along the Y-axis, toward the sky. Use the numeric tool, to choose how many floors your building will have by placing that number in the "sides" box. I gave this one 14 floors.



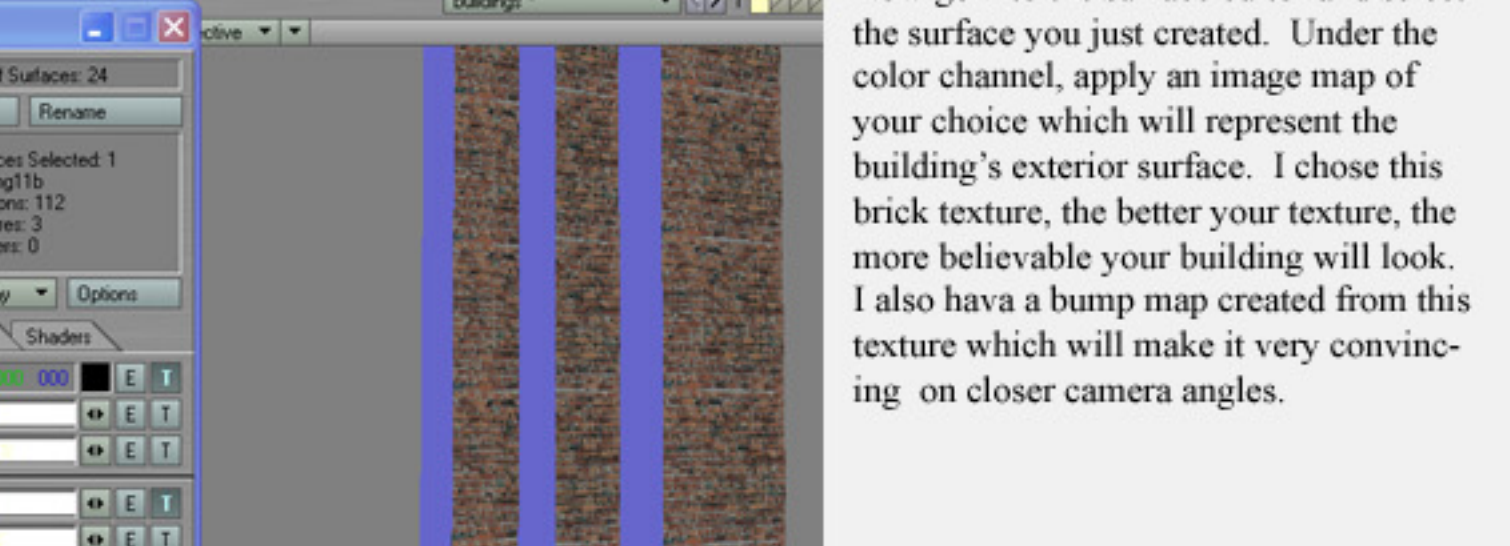
This next step is where that second surface will come into play. Once the polygon is extruded, select all of the polygons on either the X or Y-axis that are parallel to one another. (as shown in the picture) Rename this surface with the same name as before except instead of the "a" use a "b"



Now go into the surface editor and select the surface you just created. Under the color channel, apply an image map of your choice which will represent the building's exterior surface. I chose this brick texture, the better your texture, the more believable your building will look. I also have a bump map created from this texture which will make it very convincing on closer camera angles.

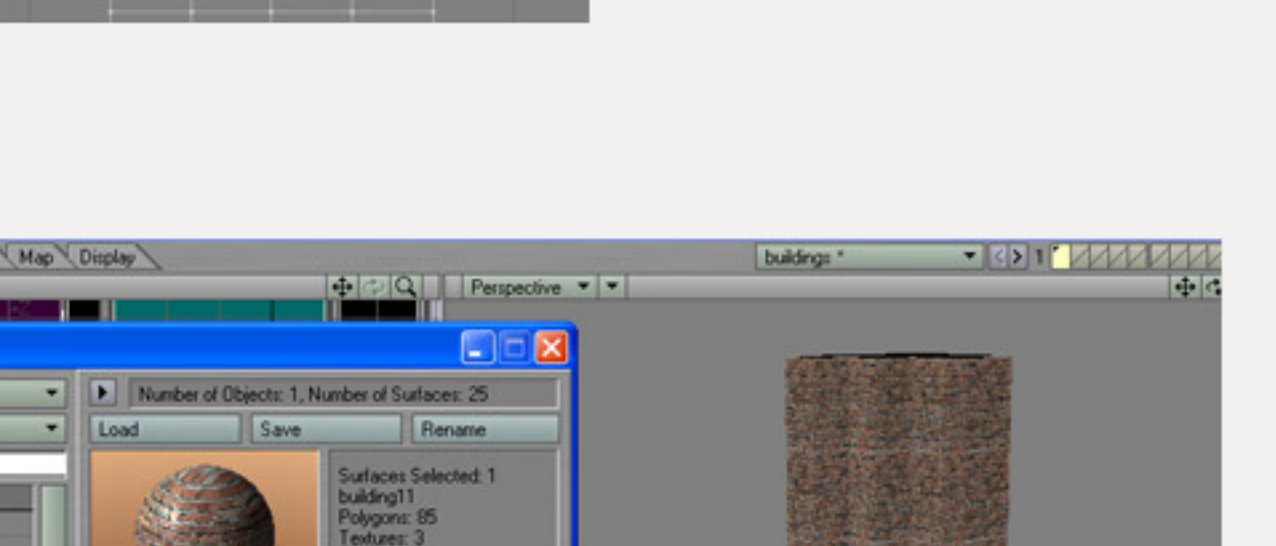


Once you have one side surfaced, simply right click that surface, copy it and paste it onto it's partner surface. In this case I copied building 11b onto building 11a. Remember to go in and change the axis which it is projected on. One will be the X-axis and the other will be the Z-axis. These two should line up and look like the picture here.

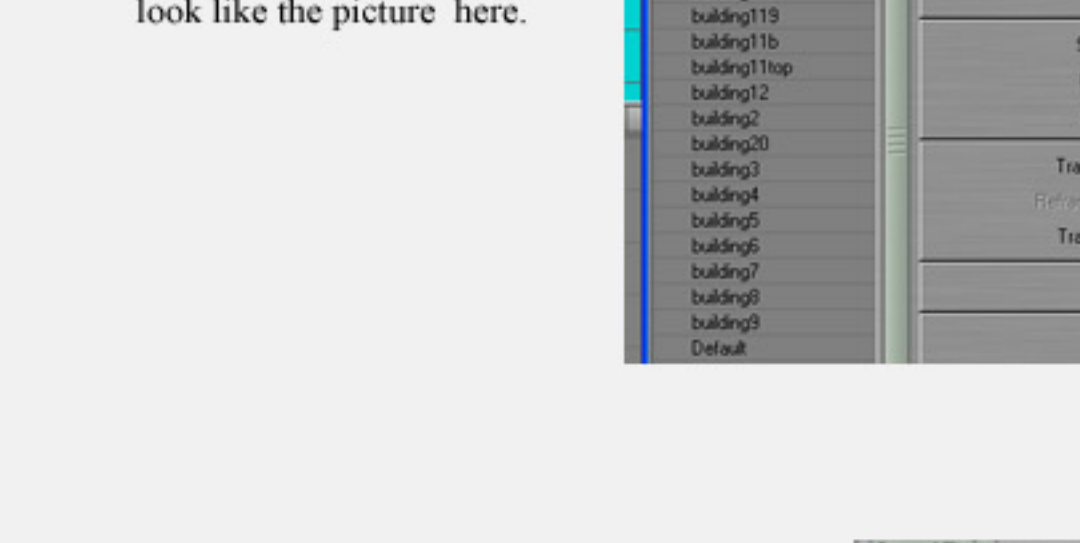


Now let's let some light in. WINDOWS

Select all of the polygons in your building, accept possibly the ones on the lowest level and the roof. Unless you want your windows to go to street level. Again, use the bevel tool to create smaller polygons. Depending on the detail you want in your window ledges, you can bevel them one time or more. Once they are beveled into position, go ahead and resurface them, naming them "Windows" and surface them accordingly.



Your final building should look something like this. From my experience if you're going for detailed buildings do them one at a time and really tweak your bitmaps, it will be worth it. If you are simply going for a ton of structures, you can keep your render-time down by using reflection maps on the windows instead of raytracing them.



These are just a few examples of what the textures look like (in varying degrees of detail) when placed in an outdoor lighting setup.

