BVE Special

BVE Creator-Converter

By Sanford Mace

I recently released several objects for *BVE*. I have received some comments on those objects, which implied that I was a pretty good object builder. The truth is that I cannot build up objects. I just cannot quite grasp how objects are created. No, the objects are not pirated, I did create them, but not in the traditional form. I used two programs that I wrote, plus *Notepad* and *Structure Viewer* to create these objects.

The two programs that I used were an object creator and an object converter. What I will do in this article is show you how I used those programs to create objects that were created in a manner similar to the ones I just released.

If you wish to follow along you will need the following:

- *BVE Object Creator* (this will appear as *Total Sphere* on your desktop - 6th object down on the main downloads page) and *BVE File Converter Version 2* (37th object down on the main downloads page) programs, available free on my homepage (http://home.cfl.rr.com/bvefl) and at the *Train-sim.com* downloads page (http://www.train-sim.com/- free to registered users).

- Mackoy's *Structure Viewer* (free download at http://mackoy.cool.ne.jp/make)

- A text editor such as *Notepad*

- Bitmaps **BUILD_006**, **BUILD_019**, and **BUILD_045** downloaded from http://amazingtextures.com/textures/index.php (available free to registered users). To download these files go to the site. Directions are for *Internet Explorer*. In the Categories section in about the middle of the page, under the URBAN section, select **Buildings**.

- Then select the building name from the list. This brings the building picture up as a photo. Right click the photo and choose **Save as** or **Save picture as** (depends on the version of *Internet Explorer* you are using). Choose the **VRObjects** folder on

your desktop. Make sure the file type is **BMP**. Leave the file name as it appears and select **Save**. If you are going to get more than the three files we suggest you register so the site owner knows you are there.
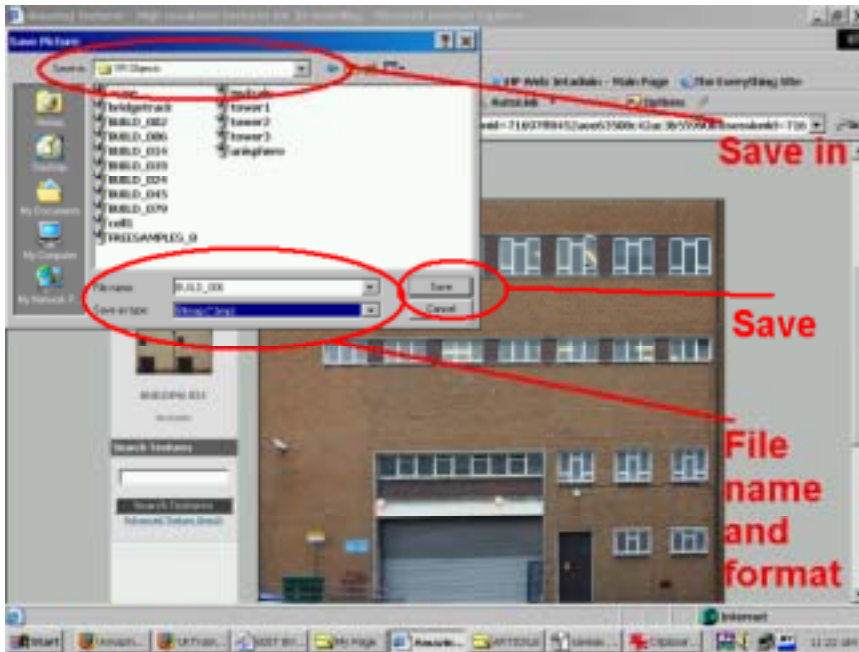
- *Irfanview* available free at www.irfanview.com. There is a comprehensive tutorial at http://home.quicknet.nl/qn/prive/haw.kristel/Irfan-tutorial/Irfanview1.htm.

One minor word of warning: these objects will be fully formed 3D objects. You will not want to use many of them in a route because they will impact the frame rate. I create objects like this because I use *RouteBuilder* [see VR October 15, 2005 issue – *Ed.*] to make my routes, and will see the objects from all sides.

We will create a couple of towers, and a couple of simple buildings. I chose these because they are composed of simple objects such as spheres, cylinders, cubes, and pyramids. These are all objects that my program can create. For this article we will do some editing of the .CSV files. I will give you the values for this set, but to learn more about what they mean you may want to look at these tutorials on object building at Luigi Cartello's web site. Scroll down to a "Guide to build graphic objects for BVE simulator in Word format by BVE Italia fans (13-8-2003)."

OK, let's get started. We will be doing all this work in a folder on your desktop to make it easy to find. Create a folder on your desktop called **VR objects**. Place a copy of *BVE Object Creator (*aka *Total Sphere)* and the *BVE File Converter Version 2* into this folder. It would also be useful to place shortcuts to *Structure Viewer*, *Irfanview*, and *Notepad* into this folder; and, finally, place the bitmaps that you downloaded from the list above into this folder. You will also need a copy of a piece of straight track for reference. Copy one from a route or the *RouteBuilder* library and the associated bitmaps to the same folder.

For your convenience, we've placed the object files and test routes for *BVE 2* and *BVE 4* at the BVE Routes section of the VR Downloads page (http://www.virtualrailroader.com/downloads.html).

Your First Building

To begin, open BUILD_045 with *Irfanview* and resave as a BMP file with 512 x 512 or 256 x 256 pixel size. (Select **File Open**. In the **Look in** field, select **VR OBJECTS** and choose **BUILD_045.bmp**. Then select **Image > Resize/Resample**. Uncheck **Preserve aspect Ratio** at the bottom. Make the width and height the values you choose below. Click **OK***,* Then choose **File > Save** and resave the file.)

The bigger file will look better, but it is HUGE. See Bitmap Size sidebar.

Now open the *Object Creator* (aka *Total Sphere* - the official name is *BVE Object Creator*).

1   Select **Create** from the menu bar and select **Cube** to display Cube window

2   Select **Vertex** option in the Cube window. You should see a window like the one above with no values.

BUILD_045.BMP appears to be a 3-story building (about 3 x 4 = 12 meters tall) and appears to be as wide, so:

3   Enter **12** for **Length**, **Width**, and **Height**

4   Enter **1** for **Horz. map rate** and **Vertical map rate**

5   Enter **BUILD_045.BMP** into the **Map File (bmp)** field and check the checkbox to the left of the field

6   Enter **BUILD_045.CSV** into the **Output File** field

7   Click **Create Cube**

8.   Load the object into *Structure Viewer* and have a look

Bitmap Size

I am not going to get into the ideal size for bitmaps. There are many good discussions on various boards. Two are listed below. For this exercise, use one of the following values: 512 x 512, 256,256 or 128 x128. Build_045 is a good one to experiment with since it is basically a geometric pattern and looks good at most any size. The bigger the bitmap the more detail and the closer to the track you can place your creation.

See REDUCING BITMAP SIZE and

Best size for passenger object bitmaps? at the Train-Sim.com forum.

Cube window.

How to run Structure Viewer

Open *Structure Viewer*. Click **View** and choose **Topmost**. This will keep *Structure Viewer* always on top. Open the **VR objects** folder you have created and move it so you can see the contents of the folder and *Structure Viewer* and the **Cube window**. Drag the file **BUILD_045.CSV** into *Structure Viewer*. You should now see your object. You can use up and down arrows on you keyboard to zoom in or out on your object. Hold the left mouse down and move the mouse to rotate the object. Hold the right hand mouse button down to move the object up and down. Practice with BUILD_045.CSV. Also look at the object while you are moving it around. When done, select **File** > **Clear** to set up for the next object.
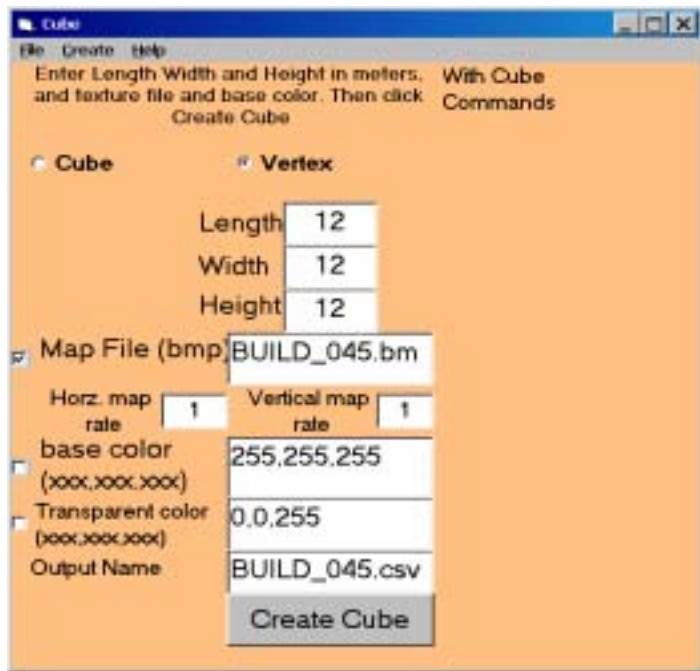
Now lets change some values.

1 Make the Width and Length **24** and the horizontal map rate **2**. Call this one **BUILD_045WIDE.csv**

2 For a different look, use the same parameters but make the horizontal map rate **3** or **4** and call this one **BUILD_045WIDE2.csv**

3 Look at this one in structure viewer. Clear when done.

Again same parameters, but this time make the height 3 times taller at **36** and the vertical map rate **3** and save as **BUILD_045tall.csv**. Look at this on in *Structure Viewer*. Clear when done. You can continue this any way you want and make as many variations as you want, but for now, keep the total width or length less than 50 meters.

Now bring your reference track into *Structure Viewer*. You will notice the building is lower than ground level.

1 Open *BVE (Object) Converter*

2 Choose **Move X Y Z** and put a positive number into the Y value. Choose one of the buildings we just created.

3 Move the building by choosing the building and click **Convert**. This creates a file called (for example) **BUILD_045.(M).CSV**.

4 Place this file and your reference track into *Structure Viewer* (see How to run Structure Viewer sidebar). See if the value you choose moved the building enough or too much.

5. Change the value if needed and move again, refresh (**File** > **Refresh**) *Structure Viewer*. (You could also open the original file and find what the lowest Y value is and use the negative of that value, i.e., if **-18**, use **+18**.)

6. When you are happy, delete the original file and rename the file to the original. When done, open the final files and add the credit lines. Make sure to add the web site as a credit.
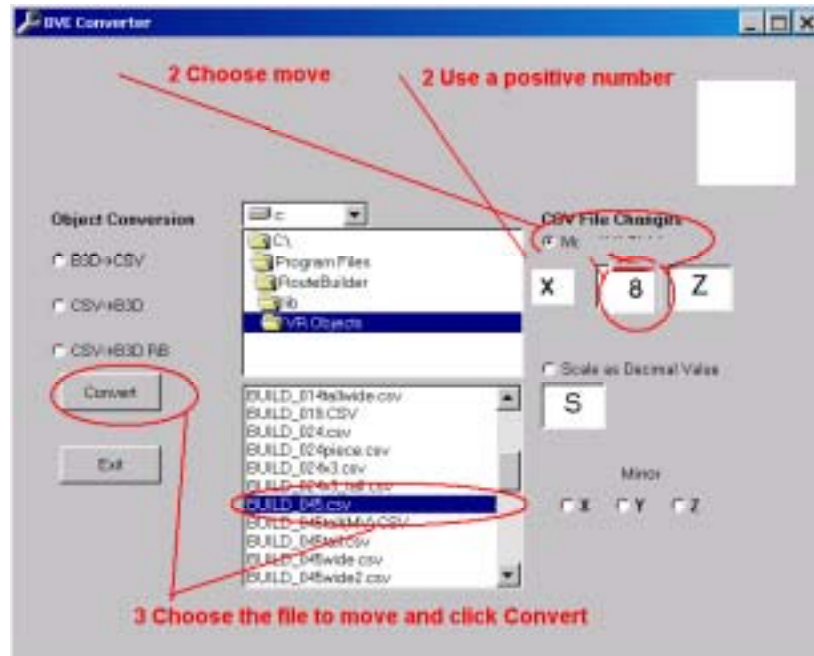
Each file as it is created by *Object Creator* (aka, *Total Sphere*, will have a built in but blank credit line that is compatible with *Route Builder's* automatic credit generator:

;description=Created by Sphere Creator (c) Sanford Mace 2004, for
;Author=
;Copyright=

You need to fill in the missing parts like this:

;description**=Building 045** Created by Sphere Creator (c) Sanford Mace 2004, for
;Author=**Your Name here,VR Reading Room Date of publishing ,Bitmaps from http://amazingtextures.com/textures/index.php**
;Copyright=**Open Source with credits**

The comma between the **Author** names is important. This is how the credits are generated. This way everybody gets the credits they are due. Note: my name **does not** go into the credits file; these are YOUR buildings. However, I do insist that the copyright for buildings from this article be open source. What you do with your own buildings is up to you.
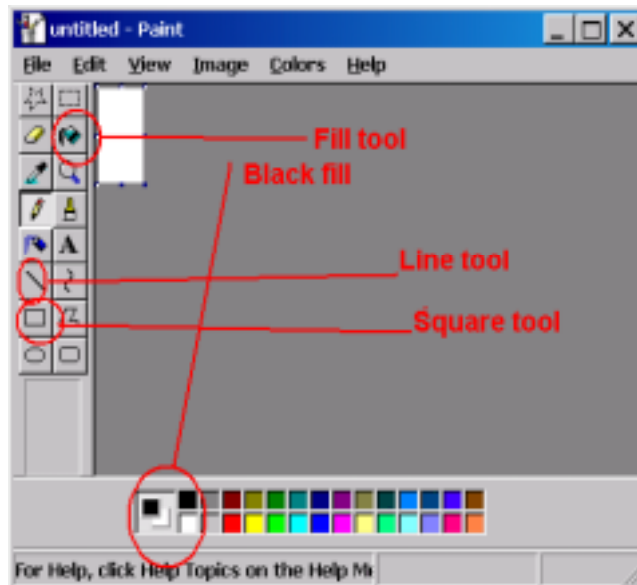
Paint window.

Other Objects

Before we continue, we are going to use *MS Paint* to create a few more bitmaps.

1   Open *Paint* (**Start** > **Programs** > **Accessories** > **Paint**) and create a new bitmap (**File > New**). This size should be 32 pixels wide by 64 pixels tall.

2   Go to **Image > Attributes** and adjust the **Width** and **Height**. Then go to **View > Zoom > Large Size**.

3   Choose the **Fill** tool and the black color and fill the box black. Then choose the **Line** tool and choose the color red and the middle sized line

4   Select the **Line** tool and choose the 2nd or 3rd line from the top

5   Draw a line from the lower left to the middle right and then one from the lower right to middle left

6   Choose the **Square** tool and make a box around the X

7   Now do the same thing in white in the top of the image, the save the image under the name **Tower1** as a 256 color BMP image
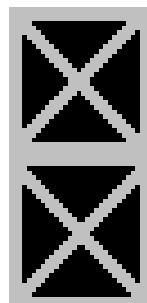
Tower1.

Now create a new bitmap. This size should be 64 pixels wide by 32 pixels tall.

1. Repeat the steps above up to the part where you fill the box black
2. Choose the light gray color and create the image shown here. Use brown and the thin line choice for the hang down parts.
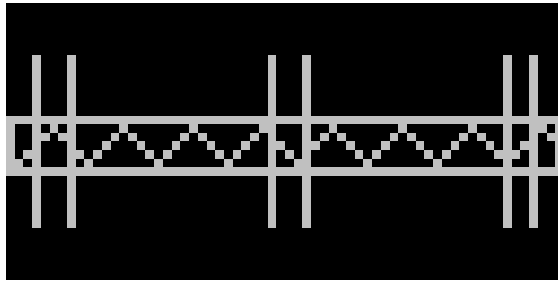3. Call this one **Tower2**
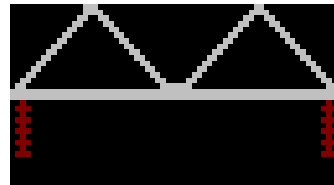
Tower2.

Do the same steps and create **Tower3.bmp**, but this time use the thin line tool.
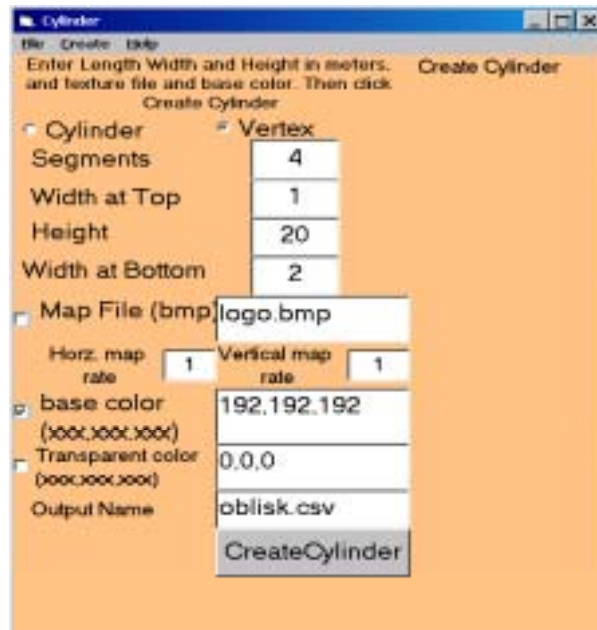

Tower3.

Now create a new bitmap. This size should be 64 pixels wide by 32 pixels tall.

1. Repeat the steps above up to the part where you fill the box black
2. Choose the light gray color and create the image shown here. Use the fine line tool
3. Save as **Cell1**

Cell1.

Obelisk window.

Making the Objects   Now we are ready to make some objects.

1   Open *Object Creator* and choose to **Create Cylinder**. A 4-sided cylinder is a cubic object, and here we can choose different height at top and bottom, an obelisk.

2   Choose **Vertex** for the type of object

3   Enter **4** into **Segments**, **1** into **Width at Top**, **20** into **Height**, and **2** into **Width at Bottom**

4   Enter **oblisk.csv** into **Output Name**

5   Enter **192,192,192** into **base color** of and check box to left of **base color**

6   Click **CreateCylinder**

7   Look at object with *Structure Viewer*

8   If you do not like the object, change parameters in *Object Creator* until you are happy

9   Now place a copy of your reference track in *Structure Viewer*

You will notice the obelisk is depressed halfway into the ground. We need to move it.

1 Clear *Structure Viewer*

2 Open *BVE File Converter Version 2*

3 Chose the **obelisk.csv** file and choose **move 4.5 meters in the y direction**

4 Load the file **obelisk(MV)** and the reference track into the object viewer (*Structure Viewer)*. Looks pretty good.

5 Delete the original obelisk and rename the **obelisk(MV)** to **obelisk**

Now we create a cap for the obelisk.

1 Change the parameters in *Object Creator* to **4** segments, **0** meters width at top, **1** meter high and **1** meter bottom width

2 Keep the same color and enter the name of **top.**

3 Click **CreateCylinder**

4 Open *Object Converter*

5 Choose **top.csv** and select **move, 9.75 in the y direction**

6 Put your reference track, **obelisk** and **top(m)** into *Structure Viewer*. Looks better.

7 With a text editor, open **obelisk** and **top(M)** files

8 Copy contents of **top(m)** file and paste at end of **obelisk** file (you can delete the header info in the **top(m)** file if you wish)

The file should look like this:

```
;Moved with BVE File Converter
;description=Created by Sphere Creator (c) Sanford Mace 2004,
for
;Author=
;Copyright=

CreateMeshBuilder,
;Make vertex
AddVertex, 1 , -0.5 ,  0 ,
AddVertex, 0.5 ,  9.5 ,  0 ,
AddVertex, 0 , -0.5 ,  0.99 ,
AddVertex, 0 ,  9.5 ,  0.49 ,
AddVertex,-1 , -0.5 ,  0 ,
AddVertex,-0.5 ,  9.5 ,  0 ,
AddVertex,-0.01 , -0.5 , -1 ,
AddVertex,-0.01 ,  9.5 , -0.5 ,
Addface,  0 ,  1 ,  3 ,  2 ,
Addface,  2 ,  3 ,  5 ,  4 ,
Addface,  4 ,  5 ,  7 ,  6 ,
Addface,  6 ,  7 , 1, 0,
SetColor ,192,192,192,
GenerateNormals,
```

```
CreateMeshBuilder,
;Make vertex
AddVertex, 0.5 ,  9.5 ,  0 ,
AddVertex, 0 ,  10 ,  0 ,
AddVertex, 0 ,  9.5 ,  0.49 ,
AddVertex, 0 ,  10 ,  0 ,
AddVertex,-0.5 ,  9.5 ,  0 ,
AddVertex, 0 ,  10 ,  0 ,
AddVertex,-0.01 ,  9.5 , -0.5 ,
AddVertex, 0 ,  10 ,  0 ,
Addface,  0 ,  1 ,  3 ,  2 ,
Addface,  2 ,  3 ,  5 ,  4 ,
Addface,  4 ,  5 ,  7 ,  6 ,
Addface,  6 ,  7 , 1, 0,
SetColor ,192,192,192,
GenerateNormals,
```

Save the file as name **Obelisk** and we have a decorative obelisk.
Delete the top files and add your name to the author line and an
object description (see above).

Radio Tower

Now let us take what we learned and make something more useful.

The first will be a standalone radio tower (see above for example on how to do this).

<table>
<tr><td colspan="2">

Transparent Color

You will find that I am going to use **0,0,0** (black) as the transparent color in almost all of these files. Any color can be used, but the traditional color has been **0,0,255** (blue). I suppose this came from the video concept of BLUE SCREEN, but I do not know. This means two things to us.

1. We cannot use true black 0,0,0 as a color in our bitmap, but could use 0,0,1 or almost true black

2. In *Structure Viewer* there is a choice under **File** to **EXPORT X**. This is a new form for *BVE 4*. In this form only **0,0,0** can be used for transparent. We are setting these objects up to be used as X files in the future.

</td></tr>
</table>

1 Choose to **Create** a **Cube** using **Vertex** commands.

2 **Length** and **Width** to **4, Height** to **60**,

3 Choose **Map File** of the name **tower 1.bmp**,**Check in front of map file name Horizontal map rate 1, vertical rate 6**.

4 Choose **transparent color of 0,0,0** and a name of **radio tower**.

5 Choose **create cube**.

6 Look at this in structure viewer..

7 Now open the file radio tower.csv in notepad and edit addface to say addface2 and comment out the lines with upper face and lower face like this **;Addface2,6,2,1,5 ; Lower Face**. I.e. add a semicolon to the beginning of the line.

8 Now we need to taper the top to a width of 2 meters. Open the radiotower file in **note pad** and change the section below

```
AddVertex , 2 ,  30 , -2 ; vertex; 0;
AddVertex, 2 , -30 , -2 , ; vertex; 1;
AddVertex,-2 , -30 , -2 , ; vertex; 2;
AddVertex,-2 ,  30 , -2 , ; vertex; 3;
AddVertex, 2 ,  30 ,  2 , ; vertex; 4;
AddVertex, 2 , -30 ,  2 , ; vertex; 5;
AddVertex,-2 , -30 ,  2 , ; vertex; 6;
AddVertex,-2 ,  30 ,  2 , ; vertex; 7;
```

to

```
AddVertex , 1 ,  30 , -1 ; vertex; 0;
AddVertex, 2 , -30 , -2 , ; vertex; 1;
AddVertex,-2 , -30 , -2 , ; vertex; 2;
AddVertex,-1 ,  30 , -1 , ; vertex; 3;
AddVertex, 1 ,  30 ,  1, ; vertex; 4;
AddVertex, 2 , -30 ,  2 , ; vertex; 5;
AddVertex,-2 , -30 ,  2 , ; vertex; 6;
AddVertex,-1 ,  30 , 1 , ; vertex; 7;
```

9 That is, make all the lines with positive 30 as the height to have an x and y value of 1 instead of 2. Now open the **file converter**, choose **move x.y.z** and move the file **29.5 meters in the Y direction**. Load the radiotower(MV) and reference track in the structure viewer. If you are happy, delete the

radiotower file and rename the radiotower(MV) to radiotower. Open the file in notepad and add the credits and description..

10 Make a copy of **radiotower** and call it **celltower.** Open the **Object Creator aka Total Sphere** and choose **cube** in the **vertex** mode. **Length** and **width** are **3** and **3, height 1.. Map file** is **cell1.bmp. Horizontal** and **vertical map** rates are **1. Transparent color** is **0,0,0 file** name is **cell**. Open in **NotePad** and change **addface** to **addface2**. Comment out the **upper** and **lower face lines** with a **semicolon**.

11 Open the **file converte**r and choose **cell.csv** and **move it 58 meters in the Y direction**. (See Above examples for steps) Open the **cell(MV).csv** in notepad and copy the contents to the celltower file and save Repeat this from the open file converter line (First line in this paragraph)twice using **52** and **48** meters for the **move** Values. Now look at the celltower file in Structure viewer.. Delete the working cell files.. Open the file **Celltower.csv** in notepad and add the credits and description. See above for steps..

Now lets see if you can do this your self. Using the directions for the radio tower, create a tower the with a base width of **10** and top width of **1** use **tower3** as the **map file** and **File name of Hightower**. Then create a **cube file** with a **height** of **2 meters length** of **6** and **width of .1. Map file is tower2.bmp working name is cube**. Use the **file converter** to move the object **CUBE.CSV** to the top of the tower, about **59 meters**. Now copy the contents of the file to highten tower. Make another one with a length of 10 and do the same thing. To a height of **52** meters. . Make another one with a **length** of **10** and do the same thing. to a height of **46** meters. Open the file in notepad and add the credits and descriptions will leave credit lines to you. This is a high tension power tower.
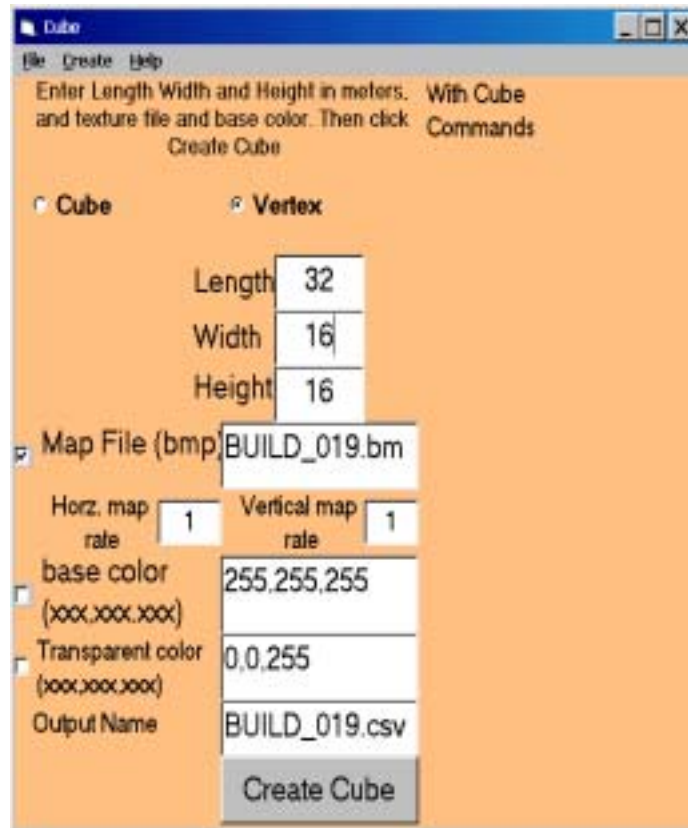
More Buildings

Now lets make some more buildings. (See the examples and screen shots above for the HOW TO parts.) For this you will need the bit maps downloaded from http://amazingtextures.com/textures/index.php .

We will start with BUILD_019. Open this with *Irfanview* and resave as a BMP file with **512 x 512 or 256 x 256** size. The bigger file will look better, but do not make this smaller than 256 x 256 because we will be using parts of the bitmap.

Open the *Object Creator (*aka *Total Spher*e) and choose **Cube, Vertex** like we did in the first building. Now this a 4 story building. One story is about 10 - 12 feet, so we need a 48 foot or about **16 meter** for **height**. It looks to be about twice, maybe 3 times that long so let us use **32** for the **width** and **16** for the **length**. **Map file** is **BUILD_019.bmp**. *(*Do not forget to put the check in front of **Map File**.) **Name** of the file will be **BUILD_019**. (See the

screen shot for an example.) Create the object. That looks pretty good. You can change any of the size parameters to fit your needs.

Now load your reference track. We need to raise the building. Follow the pattern above to move the file 7.5 meters in the y direction. Open the file in *Notepad* and add the credits and description.

Build_019 window.

Before you leave this building, create 3 more objects. For the first, use the same length and width as BUILD_019. But make the **height** be **4 meters** and the **vertical map rate** of **-.26** and call this one **SHOPS**. Make another one with the same parameters but with a **length** and **width** of **8 meter**s. Call this one **SHOP1**. We will come back to these later.

For our next building we will use the **BUILD_006** bitmap file. Follow the pattern above using these parameters: **length 32***,* **width 16 height 16 map file name BUILD_006.bmp Horizontal rate 1 vertical 1** and the **name** of the file **BUILD_006-A**. Create this and load into structure viewer. This does not look quite right, so lets change the values. **Length 15**, **width 15** everything else the same. Refresh the view in *Structure Viewer* (**File Refresh**). This looks better. We will keep this one. Use the *File Converter* and your reference track to move the file to

| **Another Building** | For our next building we will use the **BUILD_006** bitmap file again. Follow the pattern above using these parameters: **length 15, width 25 height 8 map file name BUILD_006.bmp Horizontal rate 1, vertical rate 0.5** and the **name** of the file **BUILD_006**. Create this and load into *Structure Viewer*. This looks OK, but we only have the top of the building. Open the file in *Notepad*. Make the last part look like this: |

```
Generatenormals
LoadTexture, BUILD_006.bmp
SetTextureCoordinates, 3, 0, .580,
SetTextureCoordinates, 2, 0,1,
SetTextureCoordinates, 0, 1, .580.
SetTextureCoordinates, 1, 1, 1,
SetTextureCoordinates, 4,  0 , .580,
SetTextureCoordinates, 5,  0 , 1,
SetTextureCoordinates, 7, -1 ,.580,
SetTextureCoordinates, 6, -1 , 1,
```

Replace every **0** with **.580** and every **.5** with **1** in the last section.

Now look at the file by choosing **File Refresh** in *Structure Viewer.* This looks much better. Note this is for a truck loading dock. If you are using a rail loading dock, make the building **height 10 meters**. Now use the file converter to move the file up to look good next to your reference track. This one I will leave to you to experiment with (start with about 4 meters in the Y direction). Follow the pattern on the other files to finish and clean up.

Before we leave BUILD_006, make a cube with 32 width, 16 length 1 horizontal map rate and .5 vertical map rate. Call it **SHOPTOP** Make another with a width and length of 16, a height of 8 horizontal map rate of 1 and vertical map rate of .5 called **SHOPTOP2**.

| **Pieces and Parts** | Now lets use some of the parts we have created. Open SHOPS1 in the file converter and make a Y mirror. Choose the **file nam**e, pick the **Y in the Mirror section** and click **Convert.** |
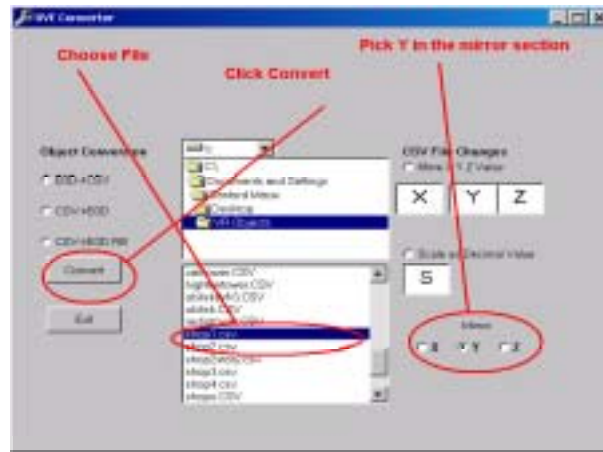
Mirror window.

This should give you a small, almost square building with the shop from the left corner. Now make 3 copies of this called **SHOP2**, **SHOP3** and **SHOP 4**. We will edit the map parameters by hand with *Notepad* to get the rest of the shops. Use these settings; you can cut and paste from here to *Notepad* if you wish:

SHOP2
SetTextureCoordinates, 3, .22, .74,
SetTextureCoordinates, 2, .22,1.00,
SetTextureCoordinates, 0, .40, .74.
SetTextureCoordinates, 1, .40, 1.00,
SetTextureCoordinates, 4, .22 ,.74,
SetTextureCoordinates, 5, .22 , 1.00,
SetTextureCoordinates, 7, 0.40 , .74,
SetTextureCoordinates, 6, 0.40 , 1.00,
SHOP3
SetTextureCoordinates, 3, .60, .74,
SetTextureCoordinates, 2, .60,1.00,
SetTextureCoordinates, 0, .80, .74.
SetTextureCoordinates, 1, .80, 1.00,
SetTextureCoordinates, 4, .60 ,.74,
SetTextureCoordinates, 5, .60 , 1.00,
SetTextureCoordinates, 7, 0.80 , .74,
SetTextureCoordinates, 6, 0.80 , 1.00,
SHOP4
SetTextureCoordinates, 3, .805, .74,
SetTextureCoordinates, 2, .805,1.00,
SetTextureCoordinates, 0, 1.00, .74.
SetTextureCoordinates, 1, 1.00, 1.00,
SetTextureCoordinates, 4, .805 ,.74,
SetTextureCoordinates, 5, .805 , 1.00,
SetTextureCoordinates, 7, 01.00 , .74,
SetTextureCoordinates, 6, 01.00 , 1.00,

Finish the credit lines and use the *BVE File Converter Version 2* to move the files to the correct height. Note that half the walls are backwards. This can be fixed, but for now leave them alone.

Make a copy of **SHOPS** called **TALLSHOPS**. Use *BVE File Converter Version 2* to **move SHOPTOP 10 meters** in the **Y direction**. Place **TALLSHOPS** and **SHOPTOP** into *Structure Viewer*. You should see the shops with a 2-story brick part hovering above them. Change the **Y value** in the *BVE File Converter Version 2* to a smaller number, do the **move** and then **refresh the object viewer**. Eventually you will get the two parts to join correctly. I will let you figure out the correct value. When you have this correct, **cut the text** from **SHOPTOP** and paste into **TALLSHOPS**. Continue this process to add 2 more floors until you are happy with the building. I did this three times to get a 7-story building.

Note for real world pickers of nits. This is a brick faced building, and those generally did not go much above 10 stories or so. When done, delete **SHOPTOP**. You can use the same process with **BUILD_006-A** and **SHOPTOP2**. You pick the name of the building.

For additional variation on the theme, you could use the *BVE File Converter Version 2* to move a radio or cell tower to the top of one of the tall buildings.

Frivolous But Fun

Now one final thing. The *Object Creator* aka *Total Sphere* started life as a sphere creator. That is why the name is *TOTAL SPHERE*. There is not much use for this in *BVE*, but it was a nice project. There is one good use for a sphere, and that is as an advertising sign. Open *Paint* and create a **16 x 32 or 32 x 64** bitmap that looks like the screen shot below. Save as **ACME.bmp**. I will leave the actual work to you. Note the background color is *cyan, 0.255.255.*

Open the *Object Creator* aka *Total Sphere* and go to **create sphere Vertex**. Create a **Sphere vertex** about **4 meters in radius** with between **8 and 16 segments***.* Use **outside map**. If

you want to try a transparent one, use **inside map** and use the *transparent color of 0,255,255*. Make sure you choose the **Transparent color** box. This will be building sign, the higher and further away from the track the fewer segments you will need to make it look good. **Horizontal rate** as **2 vertical** as **1**, use *ACME* bitmap and call this *ACME*.
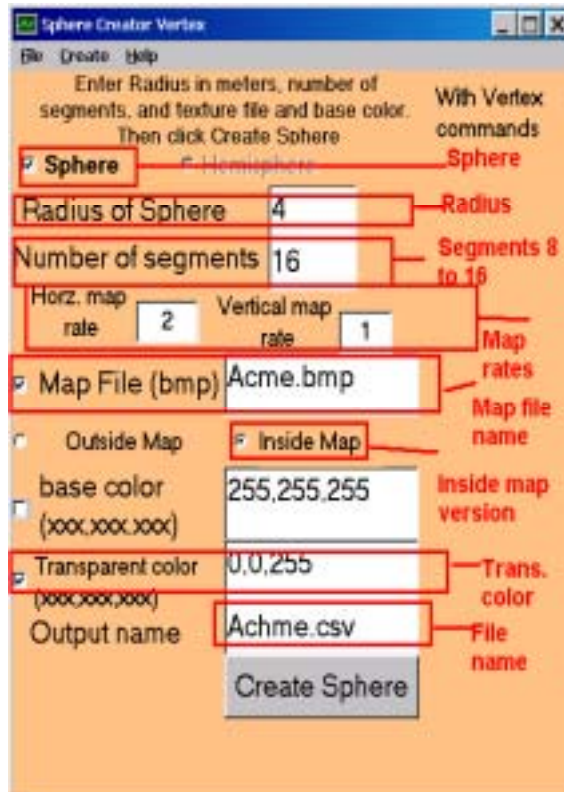
Acme sign window.

Use the *BVE File Converter Version 2* to move this to the top of one of your buildings. Copy the TEXT from ACME(M) to the building file and you now have the headquarters for the ACME Corp. (With apologies and credits to Roadrunner, Coyote and Warner Brothers).

Fixes & Patches

In the beginning of this article I gave a warning that these are rather large objects. You can modify them to be less graphic intensive by eliminating the back faces if you do not need them. Following is a modified version of **BUILD_006.csv** that has a smaller impact:

```
CreateMeshBuilder,
AddVertex, 7.5 ,  8 , -2 ,
AddVertex, 7.5 ,  0 , -2 ,
AddVertex,-7.5 ,  0 , -2 ,
AddVertex,-7.5 ,  8 , -2 ,
AddVertex, 7.5 ,  8 ,  18 ,
AddVertex, 7.5 ,  0 ,  18 ,
;AddVertex,-7.5 ,  0 ,  18 ,
```

```
;AddVertex,-7.5 ,  8 ,  18 ,
Addface,0,1,2,3 ; Front Face
Addface,0,4,5,1 ; Right lateral Face
;Addface,0,3,7,4 ; Upper Face
;Addface,6,5,4,7 ; Back Face
;Addface,6,7,3,2 ; Left lateral Face
;Addface,6,2,1,5 ; Lower Face
Generatenormals
LoadTexture, BUILD_006.bmp
SetTextureCoordinates, 3, 0, .580,
SetTextureCoordinates, 2, 0,1,
SetTextureCoordinates, 0, 1, .580.
SetTextureCoordinates, 1, 1, 1,
SetTextureCoordinates, 4,  0 , .580,
SetTextureCoordinates, 5,  0 , 1,
;SetTextureCoordinates, 7, -1 ,.580,
;SetTextureCoordinates, 6, -1 , 1,
```

You can either comment out the bold lines or delete them. This gives a two-face object without a floor or roof.

The following version: (note lines deleted)
```
CreateMeshBuilder,
AddVertex, 7.5 ,  8 , -2 ,
AddVertex, 7.5 ,  0 , -2 ,
AddVertex,-7.5 ,  0 , -2 ,
AddVertex,-7.5 ,  8 , -2 ,
AddVertex, 7.5 ,  8 ,  18 ,
AddVertex, 7.5 ,  0 ,  18 ,
Addface,0,1,2,3 ; Front Face
Addface,0,4,5,1 ; Right lateral Face
Generatenormals
LoadTexture, BUILD_006.bmp
SetTextureCoordinates, 3, 0, .580,
SetTextureCoordinates, 2, 0,1,
SetTextureCoordinates, 0, .64, .580.
SetTextureCoordinates, 1, .64, 1,
SetTextureCoordinates, 4,  1.2 , .580,
SetTextureCoordinates, 5, 1.2, 1,
,
```

gives the two-faced building with loading dock on one side and office on the other.

I will leave more advanced edits to you after looking at the object building tutorials sited above.
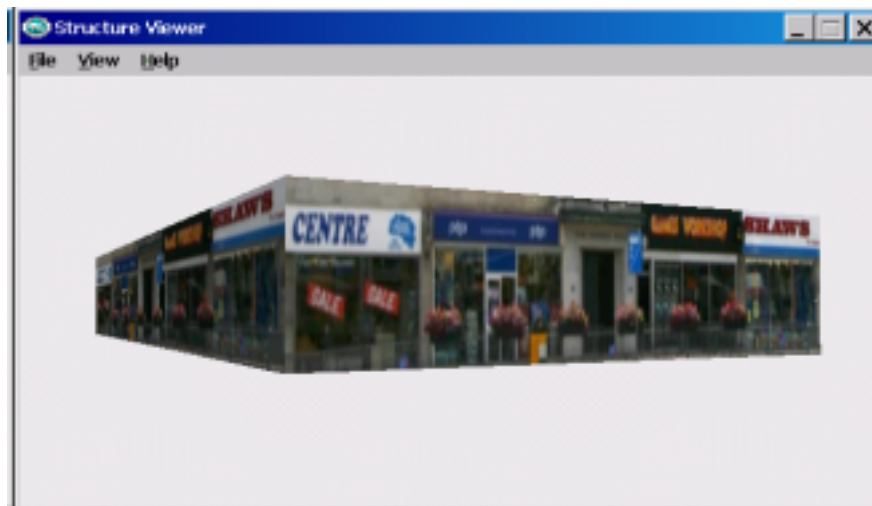
Wrap Up (Finally)   At this point you should have several good usable building objects and a path to create more. These are good startup and learning tools. You can edit them by hand to learn what make what happen, or just use them as they are. Some of them are below.

Build_045
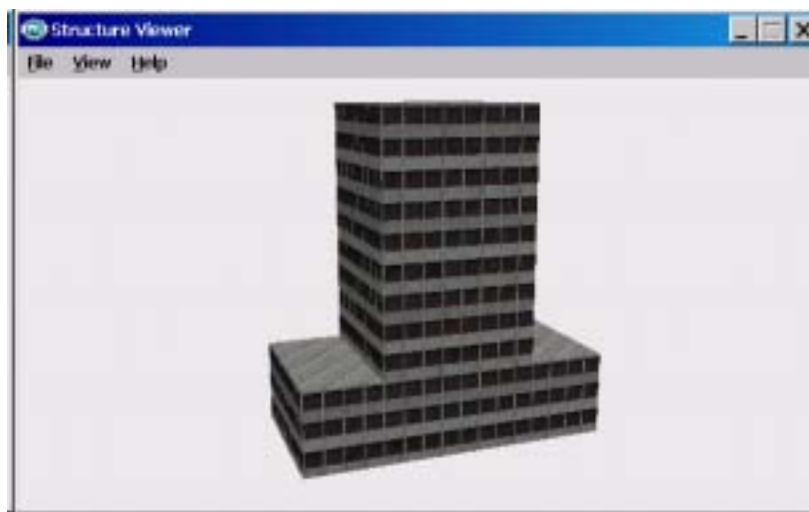
BUILD_045wide4tall

Shops

Shops4

Build_06

TallShops

Acme Building with non-transparent sphere.

Sanford

Visit the VR Reading Room for more articles on virtual railroading.