

# Turning Photos into Paper Kits for Buildings

You can download building kits to print out and construct. However, if you have photographs of a building you want to model, why not turn them into a kit you can print? Advantages are:

- You get a model of exactly the building you want, in the correct brick/stone.
- All the details like arches and decorative stonework are correct
- You don't need to mark everything out, just get the main dimensions correct
- The building comes “ready weathered”



*Wickwar Brewery Building*



*Model of Brewery from Edited Photos*

Downsides are you need suitable photo-editing software and the basic skills to use it, but you can teach yourself like I have done. The other issue is how good your photos are: some need very little work, but one with a tree in front may need a lot of editing to remove it.

Ideally you need photographs:

- Of all the sides
- Taken in good light but no strong shadows (a bright overcast day is ideal)
- Taken square on, and from some distance (using a zoom lens if you can get far enough away).
- No obstructions in foreground: parked cars, trees, bushes. March can be a good time with no leaves but often good light.

If your photos are not ideal it doesn't mean they can't be used, it just means you will have to spend more time editing them. You need a few basic dimensions to let you scale the photographs: total height, length and depth are enough.

The second requirement is a photo-editing package on your computer, and not all are suitable. The key feature the package must have is the ability to “Distort” the image, to make all the lines that should be vertical or horizontal correct.

To turn a photo of a side of a building into a printable image the steps are:

- Create a copy of the background layer using “Layer/Duplicate Layer”, then use the Edit/Transform/Distort command to make the top and bottom of the building horizontal and the sides vertical. Use View/Show/Grid to display grid lines over the image so you can judge when it is exactly square.
- Crop the photo down to only have the parts you need. You may want to leave a little extra on the bottom if you plan to make the building fit into a shallow hole in the ground to avoid gaps under the walls.

- Work out the size in centimetres you want the printed image to be from the height and width of the actual building. Use the “Resize Image” command to change the size to be correct. You must to un-check the “constrain proportions” box so you can stretch or compress it vertically compared to horizontal. Further, you should set the resolution to the number of pixels per inch you want to print, else you will lose all the detail: I suggest selecting 600 pixels per inch.



*Original (poor) photo*



*Edited image ready to print*

If your original photo was ideal that is all you need to do – just get on with the other sides and roof. Typically however there are flaws to be dealt with. One of Wickwar brewery office is particularly poor, it features:

- Robin walking in front of it
- A modern alarm that is not wanted
- Colours that are too purple
- Poor resolution
- It is taken from quite close, so there is some “fish-eye” distortion (the left hand side looks curved). Photoshop has tools to correct this if it is severe
- It is not square on, so you can see one side of the door frame and not the other

It would have been much better had it been possible to go back and take better pictures. But I did use this picture, and produced a reasonable result.

Anything you intend to model separately, for example drainpipes, may need to be edited out, though you could just overlay them.

All photo-editing packages have functions to alter brightness, contrast, and colours, which you may need to make the different sides match. Most of the work however will be editing out things you don't want and extending the image to fill in missing areas. There are two main ways to do this. You can put a rectangle round a part of the picture you want to copy (Marquee tool), key CTRL-C to copy it, select the move tool, and key CTRL-V to create a copy of the area in a new layer, which you can then move around to position it over the part you want to cover up. This is good for large areas. For smaller details use the “Clone Stamp” tool (represented by a rubber stamp icon). You first select a “brush” of the size you want, for example if copying bricks one a little smaller than their height would be good. Click on the part of the image you want to copy from with the Alt key held down, then move the brush to where you want to copy to and click to copy. Keep your finger down, so the button is not released, then as you move the cursor around it copies more from around the original location to under the brush. This is easier to understand in practice than from a written description. You can practice to your heart's content provided you don't save the results. You can choose several types of brush as well as size: a harder one forms a sharper edge when you copy,



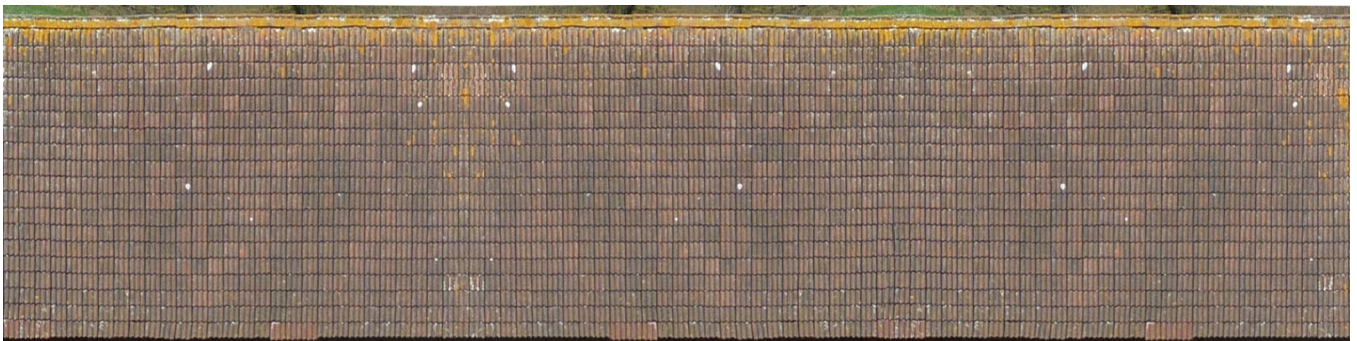
a soft one blends the edge in and I find more useful. It is possible to copy from a different image as well as from the image being worked on.

I recommend saving your results at regular intervals to differently named copies of the image so you can go back if needed, though most of the time the CTRL-Z key (undo last action) is all you need if you make a mistake, you can undo the last 5 or more edits. You also regularly need to “Merge Layers” to get rid of additional layers created (e.g. by moving part of the photo).

I use an inkjet printer onto matt photo paper in high quality mode to print the sides out. It is possible to copy all the parts of the building onto a single new A4 sized image so you can print them all at once, but I just feed the paper through several times and adjust the position where each image prints using “Print Preview” so they don't overlap. After printing, spray the sheet with an acrylic matt varnish to protect the ink from running if it gets wet when gluing it (obtainable from art shops).

Larger buildings, particularly industrial ones, often have panels that repeat along the building. Once you have one panel, you can print it as many times as needed.

You often want to make an image wider: with the buttress I had to add something to the sides to wrap round. A useful technique is to join several copies together left to right, but instead of being identical copies “flip” alternate ones horizontally (so left becomes right). This means the edges you are joining are identical, so they blend together easily.



*Roof tiles formed from 3 copies of small image, middle one flipped*

## Photo-Editing Software

**Photoshop** is the market leader and the one most other packages copy. However, the full software is very expensive and massively more functional than you need – but you may know someone who has a copy they will let you use, or has an old version they don't want. It is available online for a monthly rental, but still not cheap. More affordable (but still expensive at about £50) is the cut-down version **Photoshop Elements 13** – it has everything you need. In fact even very old versions are OK, I did all my work on the 25 year old version 1.0.1 that came free with a digital camera! You can find free downloads of early versions on the web. The open source package **GIMP** can be used – it is similar in its interface to Photoshop. See what software came free with your digital camera (and any earlier ones you had) – it may well be good enough.