MAKING BUILDINGS IN 7mm SCALE
by
Ray Hensher

1. **RESEARCH.**

You need to look at all sorts of buildings to get the hang of what might be suitable for your purpose. On most layouts there is need for a mixture of domestic and business architecture (e.g. railway buildings) and you need some good photographs of these. If you can get "full-on" views they will help when scaling. One source for domestic building pictures is Estate Agent's brochures, they used to give room dimensions as well but I don't think they do that any more. I got some nice pictures of terrace cottages from that source, and they usually have country houses as well. Obviously railway books can be a valuable source, one of mine even having scale drawings and dimensions of all sorts of buildings. One important factor is to make sure that the buildings chosen will look as if they belong to the area being modelled, styles of architecture change dramatically for example Derbyshire White Peak Bakewell and South Derbyshire around Ashbourne are completely different.

When you find a picture that you want to use, scale it up. I like to start with the door, domestic ones usually are about 6'6" high by 2'9" but they vary a lot so you need to use your judgment. Factories and suchlike can be a lot bigger. At the back of your mind you should remember the space you have available and whether it will suite the layout. Work out the other dimensions from the doors on a rough sketch, including spaces between windows. You can buy ready made doors and windows in plastic or etched brass at great expense, I have never used them; whenever I consider them they are the wrong size!

Now you can make an accurate drawing of the front elevation, and the rear elevation, adjusting to suit the space available. The side elevations will include the roof line, this can be a bit difficult to decide, I draw it usually at an angle of about 50°, but it will vary according to the depth of the building and the height of the roof, if it doesn't look right alter it until you are satisfied with the appearance.

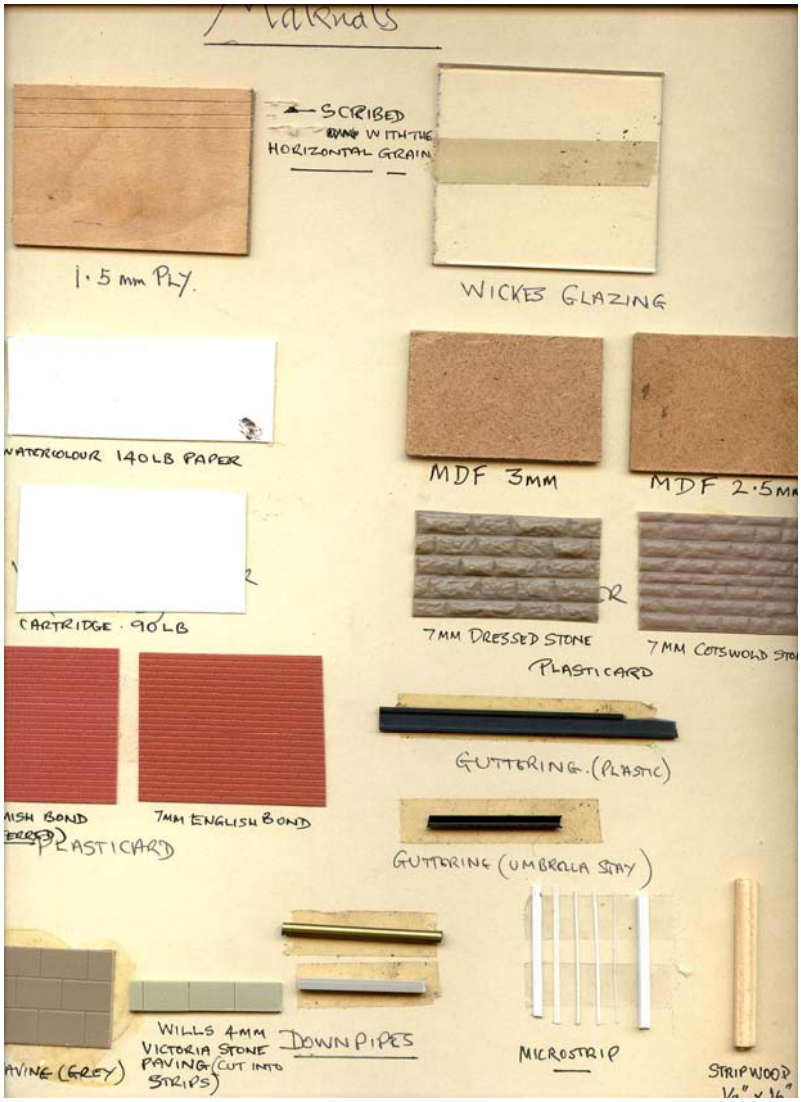
Now when making these plans do take note of the construction. For example with brick buildings they often have extra thicknesses (buttresses) that need to be included, they don't always have smooth walls. Stone buildings tend to have smooth walls, the strength is in the depth of the stone, but it pays you to look! These details add to the character of the building and make it unique, as in the Edgedale Goods Shed.

This building was a stone-built one in real life, but we needed it to be in brick, and it is built with varying depths of brick in panels, which makes it more attractive and lifelike. Look at chimneys, they are a study in themselves, doors, are they glazed or panelled (?), windows, sash or casement (?), roof, slate, tile or pantile, gutters and down-pipes. Most of the time I compromise with detail, often with guttering and down-pipes so that I can use available materials, the building can turn out different to the real thing, but it needs to have the "atmosphere" of a real building.

You will need a floor plan as you will be making floors as part of the construction.

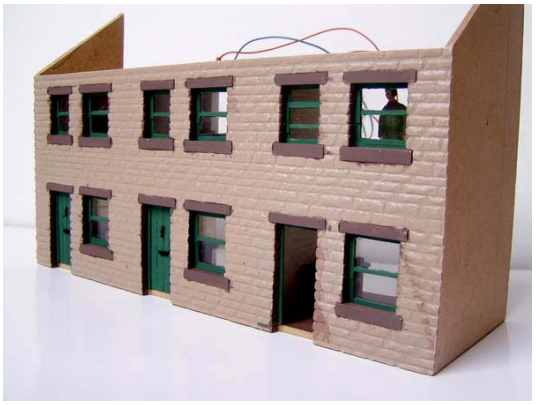
After completing the plans draw them onto the material you have chosen for the construction of the building. In doing so you will need to take into account the thickness of the construction material. As an example, I usually make the side of a building the full size as on the plan. However if using, say, 3mm MDF. I will need to reduce the length of the front and rear sections by 3mm at each end to allow for the thickness of the sides. The front and rear sections fit between the sides in most cases. The floors will be the same length as the front and rear sections as adjusted, but they will be reduced in width by 3mm both sides. They will be made of 1/16" ply or 2.5mm MDF and the roof will be made of the same material.

2. CONSTRUCTION



Materials. For the main body I have used either 1/16 inch ply, 1/8 inch hard-board, foam-board and MDF in the past. The current favourites are ply, certainly for wooden buildings like sheds but can be used for larger structures, and MDF in 2.5 and 3 millimetre thicknesses. MDF is straight, strong, robust, a bit heavy but doesn't warp. Ply can warp, so is not so suitable for large buildings. I find that I can cut the 2.5mm by Stanley knife, even window and door spaces. The 3mm can be cut on long straight sections by knife (e.g. the outer edges) but windows have to be fretted out. A small hole drilled in each corner, then cut by fret saw in between, filing to finish. I do not use a "fret Saw" as such, but a piercing saw with a blade of 30 to 40m teeth as it is more accurate. For long reaches I put the blade into a large "Fret Saw".

3. ASSEMBLY

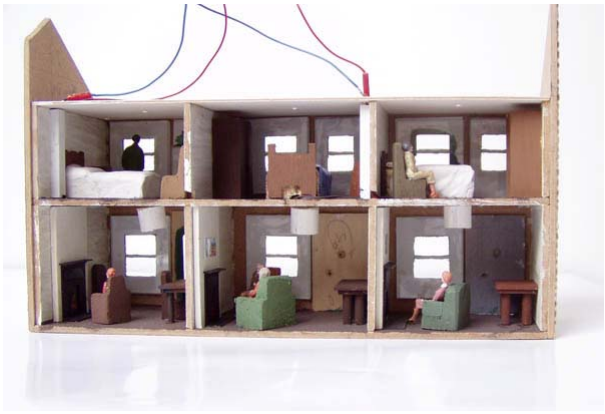


After cutting out and cleaning up edges etc decide what finish you are going to use. I use Slater's Plasticard embossed, either brick or stone, for speed and convenience, but you can plaster or coat with DAS and scribe to get the perfect finish. My aim is to get an acceptable level of finish to a layout whether it is scenery, locos, rolling stock and buildings so that there is a uniform standard. There are two types of brick I use both, a large stone one which I use for retaining walls, tunnels and one called Cotswold Stone, which is the best for buildings. At this stage fix floor supports for the upper floor(s) to the sides with Evo Stik, if the building is long, fit one to the front. I make these from strips of thin ply or strip-wood, they look like coving when painted, then paint the interior of the sections, all room dividing walls and floors and the underneath of the upper floors that will be ceilings.

Cut the Plasticard to fit the sections, for the front and back allow 5mm extra at each end to cover the edge of the sides (remember the front and back will fit between the sides), and also try to make sure that the courses match up between front, sides and back. The stone courses aren't easy as the stone is random, but look before you cut to try and match up. Now glue the Plasticard to the sections with Evo Stik Impact glue, one coat on the MDF and immediately press on the Plasticard. Leave to set with a weight on it, about an hour or two, then trim edges of side sections exact with the MDF, leave overhang on front and back, and cut out window and door spaces from behind. To do this cut from corner to corner, then cut round edges. Then cut thin strips of brick to go round the inside of the window opening. If using stone I file the edges to simulate the mortar joints, once painted it looks OK.

Windows! Ok, I make them, using plastic double glazing sheet from Wickes or from Homebase, it's about 1.5mm thick and you score it a few times, put it in a vice between two pieces of wood with the line just showing, bend it away from you and it snaps off. Better than the stuff they sell in model shops, more rigid and lots cheaper. I place the glazing behind the window opening, holding it in place with blue-tack, and from the front using a sharp scriber, scribe on it the inner outline, then marking on it the window number and "Top", then I do all the other windows. I cheat a bit as far as the glazing. Using Slater's micro-strip "various widths" I use strips about 2mm wide placing these all round the inside of the scribed line as window frames, then using thinner strips build up the glazing bars, either as casements or sashes. I use "Plastic Weld" to glue these on the glazing. After painting, the window assembly is glued to the section, if there are slight gaps between the window frame and the wall, paint on the back of the glazing to hide it. (see Appendix I and II).

Doors can be made in a similar way and attached after painting. The rule is to paint as much as possible before assembling.



Take the upper floors and drill holes where you want to hang lighting. I use grain of wheat 12 volt bulbs, I've never got round to using LEDs, providing you use a controller to reduce the amps the bulbs will last years, I've not blown one on my layout in 25 years! Also drill a hole for the main supply to go from all the lights to the power source, usually in one of the front corners. Interior wiring can be masked by furniture, or even a false floor.

Take the front, sides and ground floor and glue together with Evo Stik (I don't get commission from them, honestly!) a coat on each piece so it's glue to glue, leave to dry for about 5 minutes, the new formula is quicker drying, and put together with some pressure. Put the upper floors in. The back goes on after interior furnishings. Check for squareness, but don't worry if it isn't absolutely square, a lot of real buildings aren't.

You can now add the lights. I usually make shades from paper, see drawings appendix, and then hang them down from the ceiling holes. Connect up as normal. It is worth checking before you start that the bulb works! The next stage is to add interiors, you can make furniture etc really simply, it won't be seen clearly, as long as it looks as if there is something there. With larger buildings things can be seen more clearly, but you can make basic things like benches etc, and cupboards, and even put things together that look as if they are proprietary, look for cheap plastic ones, leave the expensive ones for outdoors. It is important to include figures so the building looks populated. The roof is cut from 1/16" ply, with the grain going longitudinally, i.e. in line with the front edge. Allow for the roof to overhang at the sides and at the front, about seven to ten millimetres is usual. Slates are made of cartridge or watercolour paper, stuck on the ply and then painted. See the separate instructions by Bob Matkin at the end of this article.

Fix the roof to the assembly by Evo Stik then fix the back to the building, if possible by putting small blocks of wood at the sides and on the upper floors and screwing through the back, at the same time gluing the bottom edge of the back to the ground floor. If any of the interior fittings become detached of the lighting fails it will be possible to get in and fix the problem.

4. FINAL FINISHING.

Fit strips of black plasticard painted the same colour as doors, or a dark brown/black to the top of the front and back sections as fascia boards. Gutters and down-pipes are fitted last of all, guttering can be made from a variety of mouldings in plastic, also umbrella ribs are about the size for half-round gutters,drill the side and fix a piece of brass rod with superglue then drill the side of the building and fix with 5 minute epoxy glue to the fascia boards. Down-pipes can be made of any tube, but metal has the advantage in that it can be bent to accomodate buttreses etc and bent at the bottom for the drain. Paint these items before fixing. Chimney details are in Appendix III.

With stone cladding there are gaps where the sides and front/back at the corners. Fill these with polyfilla and when it dries scribble to match up.

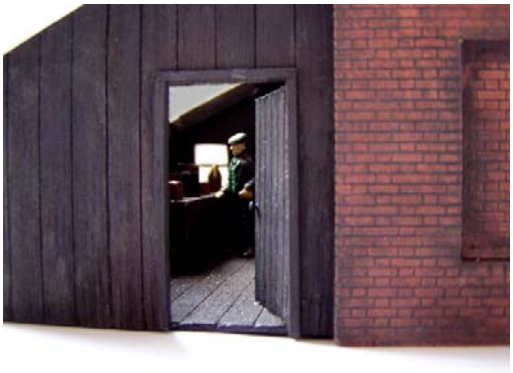
Weathering is important, I use matt Humbrol paints, a dirty chocolate brown with a little white mixed in, mixed with white spirit until it is the consistency of thin cream, brushed on all over the walls, left for about 20 seconds then lifted gently with a clean dry cotton cloth leaving quite a lot behind. You need to do this in sections of about 3 or 4 inches by 5 inches at a time, but get used to mixing plenty of the colour to avoid running out. I'm sorry but only practice will give a good result, but the advantage of this method is that you can wipe off with white spirit and try again. I will do a separate article on weathering buildings and rolling stock in the future.

5. WOODEN BUILDINGS.

As these sections have dealt with a mainly plasticard clad buildings I will give a short paragraph or two on wooden buildings

Sheds etc are best made from 1/16" ply, following the same planning procedure as before, marking out in the ply allowing for 1/16" less at either end of the front and rear, the sides being full size. Buildings with vertical planking are constructed with the grain of the ply vertical, scribe the planks with a scriber fairly deeply, sandpaper very lightly and using a craft knife enlarge some of the lines and cut gaps at intervals at the bottom. Shiplap buildings are best constructed on a ply base, grain horizontal, using 1/32" ply strips over-lapping, at corners a vertical strip at the edges of sections will be needed.

Window openings and door openings are cut out as usual, but windows will have a thin strip about 1.5mm wide all round on the outside on top of planks.Windows are made as usual, but as they are smaller I use a thin clear plastic, like the stuff that comes with shirt packaging for glazing. Doors are made from ply and planked, usually smaller planks than the sections, but always vertical.



If the shed is fairly large, as in the one Photo, it will need strengthening horizontally. With that building I have used 1/4" by 1/8" strip-wood throughout to avoid warping, top and bottom of front and on slope of sides. Make a planked floor, reducing depth, make a longitudinal support for the roof the same length as the floor and glue assembly together with Evo-stik. The roof can be made from ply, covered in slates as shown. Or if felted use a thin paper with a surface, like cartridge paper, and add battens from front to rear at intervals, with end pieces (barge boards).

6. FINISHING

Paint the shed, usually dark brown/black adding a spot of rust colour and white to represent ageing, splash it on adding bits of pure matt black for tar. With buildings, as with some rolling stock, matt paints are the rule. It is easier to add a gloss varnish for a shiny door (for example) than to matt down a gloss paint. If you have to use a gloss paint because nothing else is available, add Light Magnesium Carbonate powder, or baby powder to the paint, a small amount will matt it. Get into the habit of mixing the paints in a dish to get the shades you want but remember to add the dark paints to the light in small bits. Many of the ready mixed colours are quite unrealistic and need some toning down. Buildings are quite dull in colour, and the idea is to let them merge with the landscape.

Now, when a building reaches the layout, the last thing that you want to see is a black line between the building and the layout floor. So often do you see that, and it quite spoils the efforts that have gone into making the building. Relax, help is at hand! What I do, for level ground, is to put the building where you are going to position it, draw round the bottom edge of the building so that an outline of the building is left. Then with either Wills “00” scenic Victoria Stone Paving (the best to use) or Slaters York Stone plasticard cut into strips glue these with Evo-stik to the ground outside the line all the way round. The building can then be placed in situ and looks as if it has been built there permanently. With our exhibition layout “Wirksworth”(sadly no longer here), we decided from the start that as many buildings as possible would be detachable, with the result that after 13 years on the exhibition circuit the buildings still looked like new. We will carry on that tradition with our new layout being developed, “Edgedale”.

I hope that the article will encourage you to have a go at making your own buildings, as always there is a great amount of pleasure to be had when viewing the scenics on your layout and thinking “ I did that “.

Ray Hensher October 2007

ROOF TILING IN 7mm SCALE
by
Bob Matkin

1. Tools/ Materials

Steel rule
Swan Morton craft knife with no 1 blade
Cutting mat
Pencil
PVA glue
Glue brush
Strip of masking tape
Cartridge paper

2. Method

The tile strips are best added prior to the plywood roof panels being glued to the model. Firstly decide on the size of the finished tile, then measure the height of the roof panel, divide this measurement by the tile height to give the number of tile strips to be marked out. In the example illustrated at the end of the write up the tile size is 10mm x 6mm high. As the roof panel is 62mm high, 9 strips of 6mm tiles are required for each roof panel, leaving 8mm for the ridge tile. Whatever the height of the tile the strips need to be twice that size to allow for overlap.

Mark out on the cartridge paper 18 x 12mm wide horizontal lines (9 per panel) followed by an 8mm cutting line and a 6mm tile height line. Mark out the overall length of the roof leaving a few millimetres extra for final trimming. As I mark out my strips on a drawing board I alternate the vertical tile gaps between the rows. However they could be marked out in identical vertical rows and offset on alternate rows at the gluing stage.

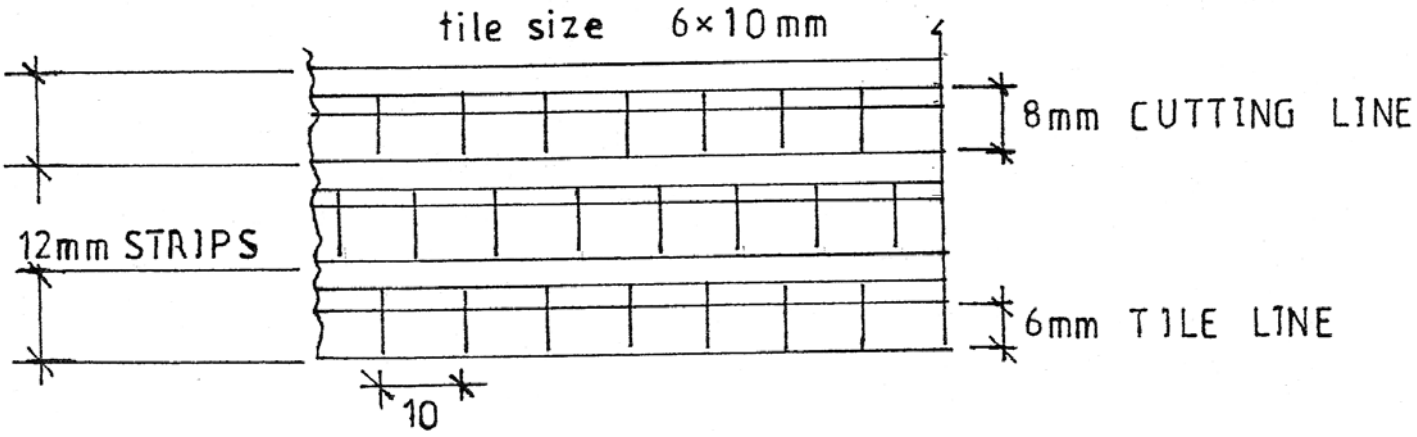
Once marked out take the craft knife and make a double cut at the end of each tile line and cut up to the 8mm line, continue to the end of the strip Remove all the small strips between the double cut. At this stage broken and chipped tiles can be made Once all the verticals are completed the strip can be cut off along the 12mm line.

Place the tile strip face down on a suitable surface and brush on a coat of diluted PVA, butt the strip up to the 11mm mark on the roof panel leaving a 1mm overhang at the base and firm down. Continue this process until all the strips are applied and trim to length if necessary.
Glue the completed roof panels to the model.

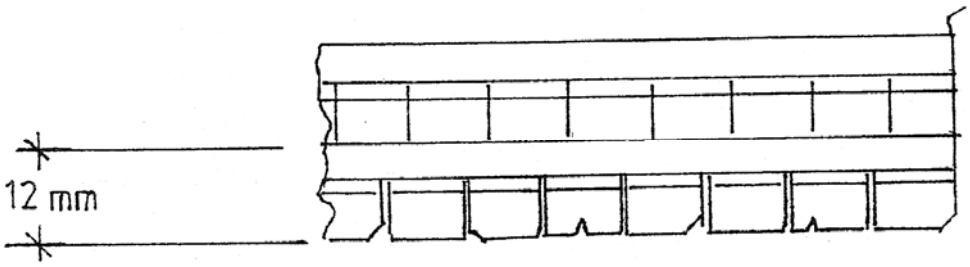
3. Ridge Tiles

Mark out the overall length and height of the ridge tile strip on the cartridge paper and cut to size. Measure and mark the length of each tile across the strip then fold lengthways along the centre line and glue into position. Cut 1.5mm wide strips from the masking tape and apply over the pencil lines to replicate the raised ends of the tiles. The roof is now ready for painting.

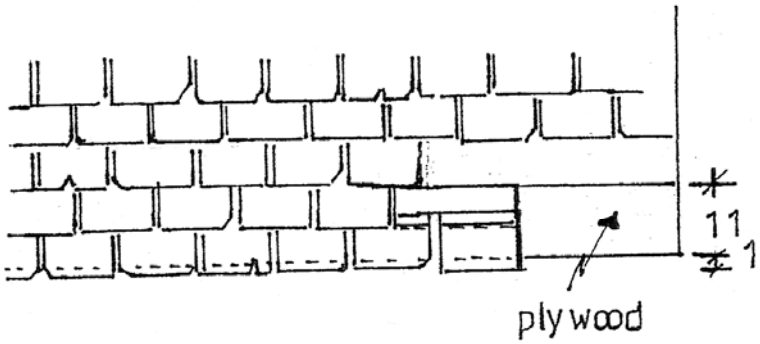
Bob Matkin, October 2007



MARK OUT TILES



double cut between tiles
add broken corners and
cut strip for glueing



SET FIRST ROW ON
11 mm LINE WITH
1 mm OVERHANG

GLUE STRIPS TO PLYWOOD

APPENDIX I

WINDOWS OPENINGS

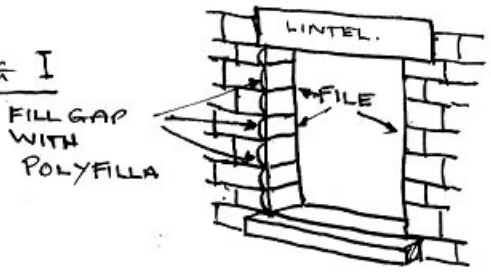
1. STONE BUILDINGS

CLEAN WINDOW OPENINGS WITH A FILE. CUT A PIECE OF WICKES DOUBLE GLAZING APPROX. 10MM BIGGER ALL ROUND THAN OPENING. FIX TO BACK OF SECTION TEMPORARILY USING BLU-TACK. SCRIBE WINDOW OPENING ONTO GLAZING, FOLLOWING EDGES ALL ROUND; REMOVE GLAZING MARKING WITH NUMBER OF OPENING AND "TOP", REPEAT FOR ALL OTHER WINDOWS, AND FOR DOORS. FILL GAPS IN STONE CLADDING AT WINDOW OPENINGS WITH POLYFILLA. WHEN DRY FILE SIDES OF WINDOW OPENING TO MATCH STONE COURSES - DRAWING I. PUT IN STONE LINTELS & STONE WINDOW LEDGES, PAINT SIDES OF OPENING, LINTELS, WINDOW LEDGES & BOTTOM OF OPENING WITH STONE PAINT (MIX YELLOW, BROWN & WHITE).

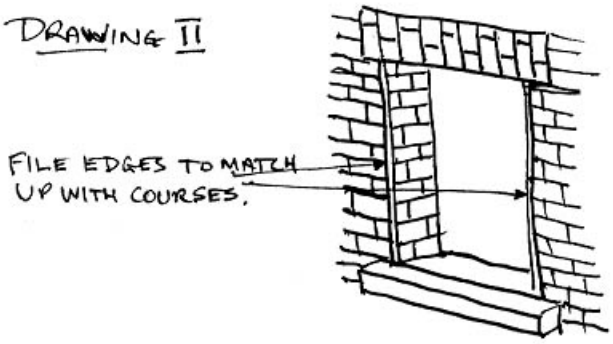
2. BRICK BUILDINGS

CLEAN WINDOW OPENINGS WITH A FILE. USING EVO-STIK GLUE STRIPS OF BRICK PLASTICARD TO SIDES AND TOP OF OPENING, MATCHING BRICK COURSES ON FACE OF SECTION. WHEN DRY FILE EDGE TO MATCH COURSES. CUT A PIECE OF WICKES DOUBLE GLAZING 10MM BIGGER ALL ROUND THAN OPENING. FIT TO BACK OF SECTION TEMPORARILY USING BLUE-TAK. SCRIBE WINDOW OPENING ONTO GLAZING, FOLLOWING EDGES ALL ROUND. REMOVE GLAZING, MARK WITH NUMBER OF OPENING AND "TOP", REPEAT FOR ALL OTHER WINDOWS AND DOORS. WEATHER SIDES & TOP PLASTICARD, ADD STONE OR BRICK LINTELS, STONE WINDOW LEDGES; PAINT BOTTOM & WINDOW LEDGE, AND STONE LINTELS STONE COLOUR (YELLOW, BROWN, WHITE MIX). DRAWING II

DRAWING I

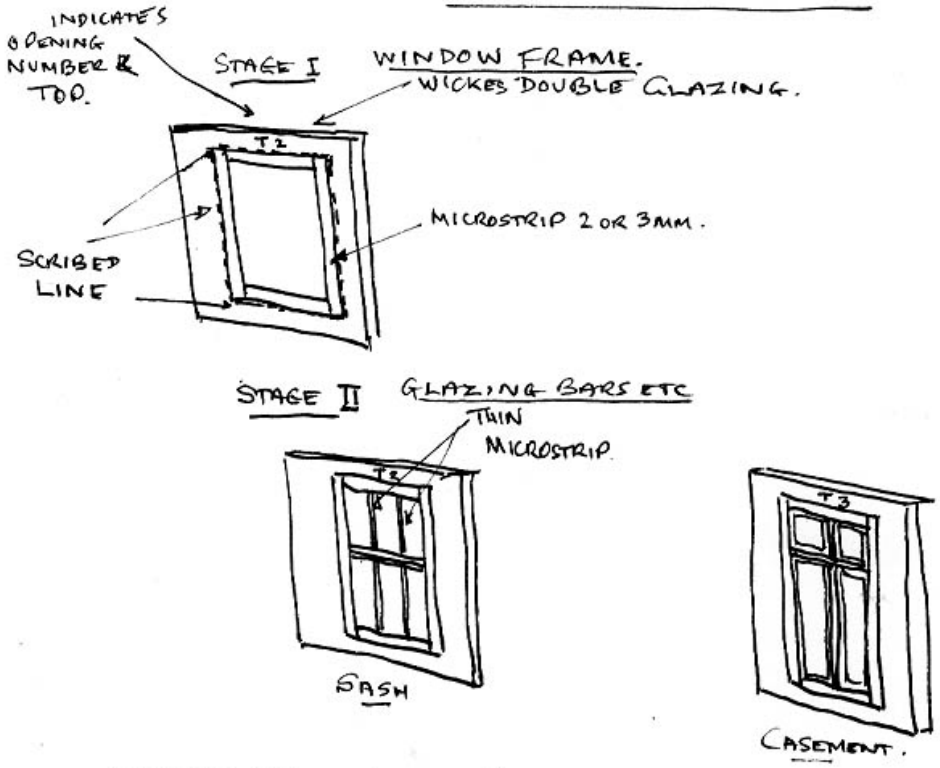


DRAWING II



APPENDIX II

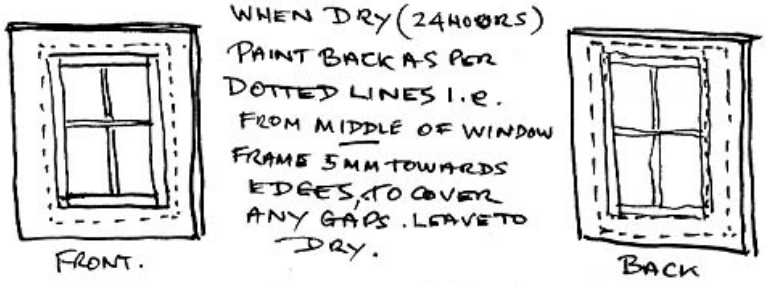
WINDOW FRAMES & GLAZING BARS



MICROSTRIP, PUT ON USING PLASTIC WELD, IF IT GETS ON TO GLAZING DONT TOUCH IT, IT WILL DRY CLEAR!

PAINTING USE NO 2 OR NO 1 BRUSH (NO SMALLER) BEST COLOURS - CREAM, DARK BROWN, DARK GREY, DARK GREEN. NO BRIGHT COLOURS!!

PAINT FRONT OF WINDOW FIRST, TO DOTTED LINES (ABOUT 3MM OVER)



N.B. CURTAINS CAN BE FITTED NOW.

THEN FIT ASSEMBLIES TO SECTIONS, EVO-STIK AGAIN.

APPENDIX III

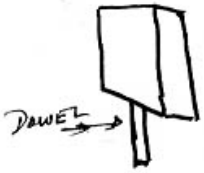
CHIMNEYS

STONE UNLESS DRESSED STONE & SIGNIFICANT BUILDINGS (e.g. RAILWAY) THESE ARE USUALLY SIMPLE.

BRICK THESE ARE MORE ORNATE, WITH BOTH STUDY DIFFERENT STYLES TO SUIT YOUR BUILDINGS.

1. FROM THE BUILDING PLAN MAKE A GUIDE ON CARD OF THE ANGLE OF THE ROOF :—

USING A SUITABLE BLOCK OF SOFTWOOD MAKE THE BASIC SHAPE & SIZE WITHOUT CUTTING THE BOTTOM ANGLE. DRILL A HOLE VERTICALLY IN THE BLOCK TO TAKE A DOWEL (3/16" or 1/8"). MEASURE THE HEIGHT OF THE CHIMNEY AND USING GUIDE MARK BOTTOM ANGLE, FIT DOWEL :—



PUT DETAIL ON USING PLASTICARD, STONE OR BRICK, WHEN FINISHED DRILL HOLE IN ROOF VERTICALLY, PUT CHIMNEY IN PLACE, MARK & CUT AWAY SLATES :—

→ DRILL CHIMNEY TOP TO TAKE CHIMNEY POTS, I TURN THEM UP FROM 1/8" DOWEL, SQUARE ONES FROM PLASTIC MOULDING. DOWEL IN BOTTOM.

GLUE IN POTS, TO SIMULATE CONCRETE BEDDING-IN I USE MILLIPUT, PAINT IT & THE POTS AFTERWARDS.

FIX TO ROOF. !