WARGAMES illustrated

"How To..."

A GUIDE TO MODELLING (2)

INTRODUCTION

This 'How to... A Guide to Modelling (2)' is a compilation of articles published over several years in *Wargames Illustrated* magazine. It is the second in an on-going series which began with the publication of 'How to... A Guide to Modelling (1)' back in 2018. Our original plan was be make the guides available to purchase on an annual basis, but instead we have decided to give them away free with copies of *Wargames Illustrated* magazine. So, here you are - have this one on us, gratis.

As mentioned all of these articles have been published in *Wargames Illustrated* previously and are also available to view via the Wargames Illustrated Vault. You will find they are gloriously eclectic, covering subjects as various as explosions, Anglo-Saxon tents and ruined 15mm WWII buildings.

Most of the content for 'How to.. (2)' has been supplied by *WI*'s model-maker par excellence Paul Davies, but there are also contributions by other respected modellers like Dave Taylor (Dave Taylor Miniatures) and Dave Andrews (Games Workshop).

Look out for 'How to... A Guide to Modelling (3)', (4) and (5) coming with future issues of *Wargames Illustrated*, with PDF versions being made available to view online or download by WI Prime Members! In the meantime I hope you enjoy this issue.

Dan Faulconbridge,

Wargames Illustrated Owner and Editor.

CREDITS

Produced in the UK and USA by Wargames Illustrated Limited.

Contributors: Paul Davies, Dave Taylor, Dave Andrew and Ron Ringrose.

This publication features metal and plastic figures from a wide variety of different figure manufacturers.
All miniatures featured are owned by the producers.

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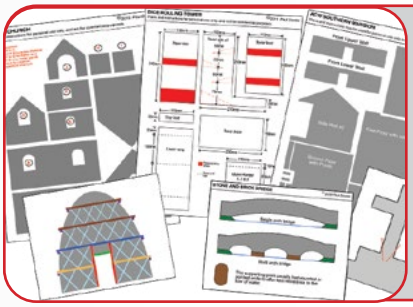
CONTENTS



IN ORDER TO AID WITH THE CONSTRUCTION OF SOME OF THE MODELS DESCRIBED IN THIS BOOK, WE HAVE PROVIDED 'PLANS', WHICH ARE AVAILABLE TO DOWNLOAD FROM THE WARGAMES ILLUSTRATED WEBSITE.

WWW.WARGAMESILLUSTRATED.NET

HOW TO CONVERT... A MASSACHUSETTS FARMHOUSE

PLANNING OUT YOUR FARMHOUSE CONVERSION

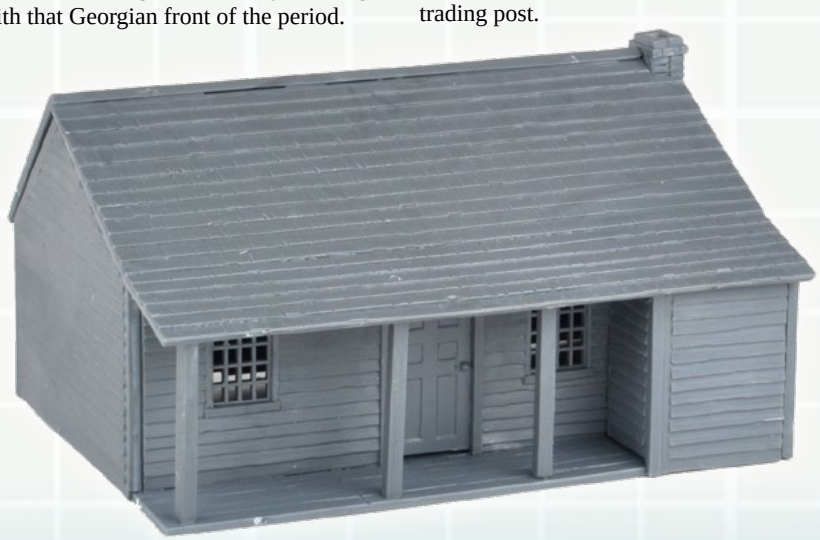
When we first began discussions about AWI, The Road To Revolution we thought it would be a great idea to include an article on how to model a New England-style home for your games in the Massachusetts countryside. After taking a look at quite a few photos of farmhouses from the period online, we recognized the consistency of the Georgian style of architecture. The front of each house was uniformly flat, with all the windows on both stories symmetrically arranged around the centrally placed door. Very distinctive.

The conversation then turned to the **American Farmhouse, 1750-1900** model kit from Perry Miniatures (see below). Did we need to build something new when a great kit like this already existed? Our conclusion was to attempt a fairly simple (yet detailed) conversion of the kit, making it a two-story building with that Georgian front of the period.

What follows is a look at that conversion process. Hopefully this will show you a few helpful tips and tricks and inspire you to make your own conversion from this great kit. It was relatively easy to create this Revolutionary period house, but it could just as easily be converted into an Old West saloon or Darkest Africa trading post.

TOOLS & MATERIALS

- Cutting mat and steel rule
- Sharp hobby knife
- Polystyrene cement (aka plastic glue)
- 1mm thick styrene sheeting (aka plasticard)
- 20 (or more) 4x0.5mm styrene strips
- Bondo Spotting & Glazing Putty
- One Perry Miniatures Farmhouse
- Paints and brushes

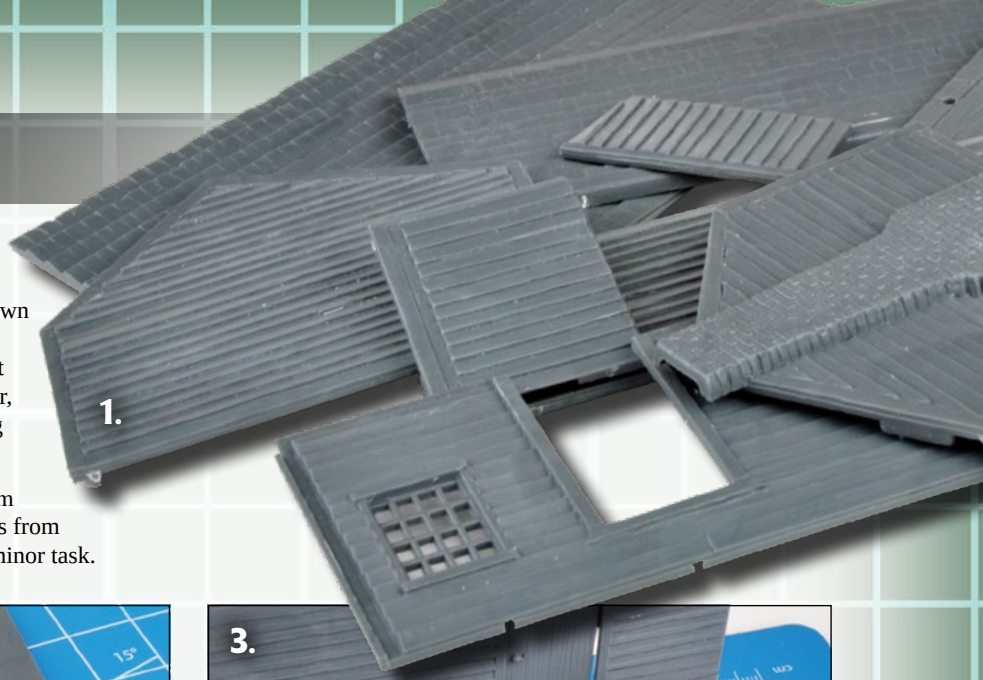


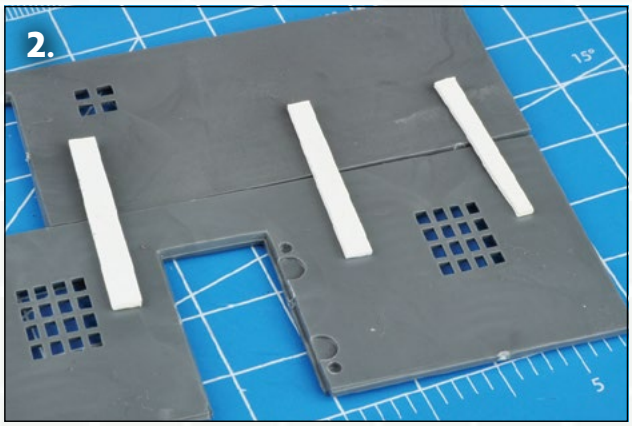
*It took less than 20 minutes to clip the parts from the frame, clean them up, and assemble the original **American Farmhouse** kit.*

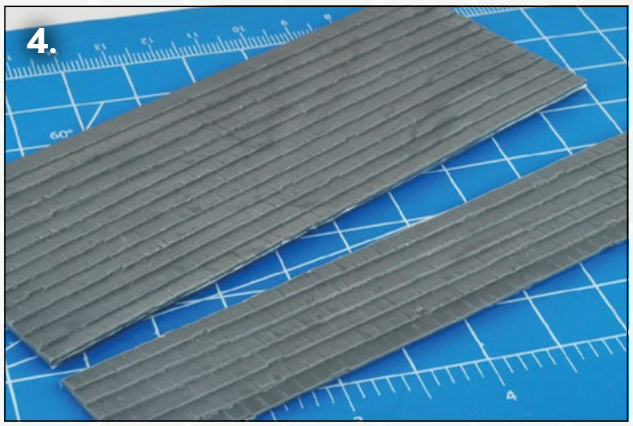
STARTING WITH THE REAR WALL

The aim for this project was to create a new building from the Perry Miniatures kit, but use as much as possible of the original kit to cut down on the build time and amount of other material required. To make sure my heights were correct for the sheet styrene sections I'd be cutting later, I decided to begin with the rear wall, consisting of the front and rear wall of the kit.

1. The first step, then was to clip the panels from the sprues in the box and trim off the mold lines from around the edges. Thankfully this was quite a minor task.







2. I glued the front wall to the rear wall (the latter on top of the former) and added some plasticard battens (offcuts from other projects) for extra strength and stabilty.

3. I glued on the rear door, then cut a similar style door for the (former) front doorway. The wood grain was carefully scribed in with a sharp hobby knife. I then added the porch floor and small "bump-out" (cut from the side wall of the house).

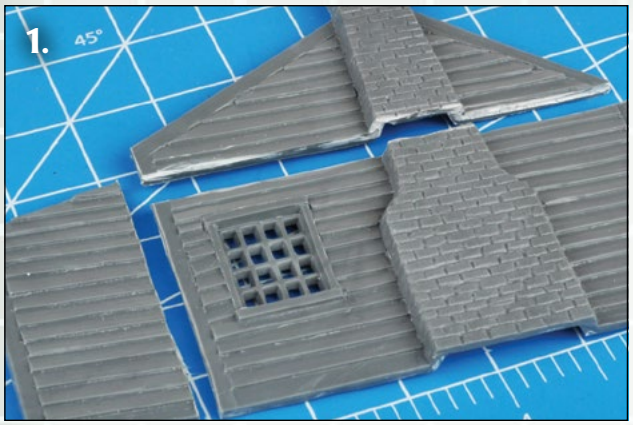
4. By moving the covered porch to the rear of the building and adding an extra story, I now needed to cut the porch roof from the main roof. I did this with a hobby knife by carefully scoring the top of the roof a few times, then quickly snapping the porch roof off and cleaning up the edges.

5. And, of course, the final stage is bringing it all together. I glued on the porch roof and the support posts and let that all dry.

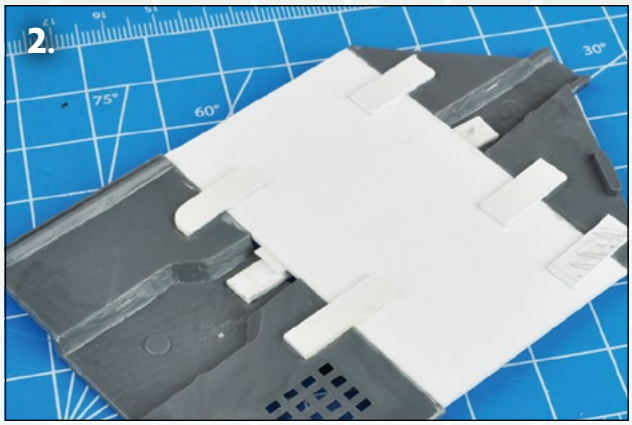
Then I built the small, ad-hoc "balcony" on the upper level. I wanted something fairly basic, something that might have been added at the last minute by the homebuilder. A few pieces of 1mm sheet styrene were used for the floor and the support. They had wood grain scribed into them in the same fashion as the lower level door.

The railing and posts were actually cut from the sprue of fences that comes with the American Farmhouse kit. I did say I wanted to use as much of the kit as I possibly could.

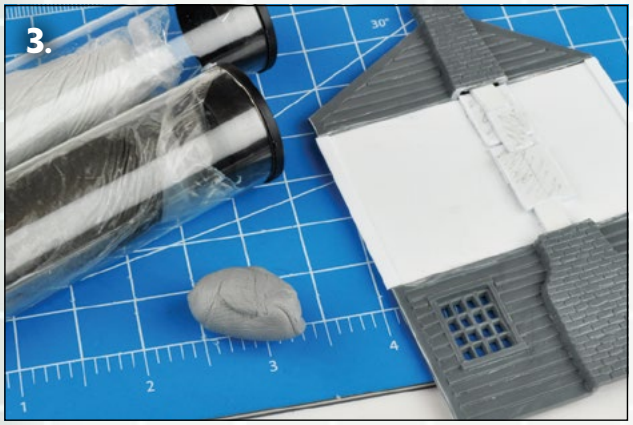
SIDE WALLS



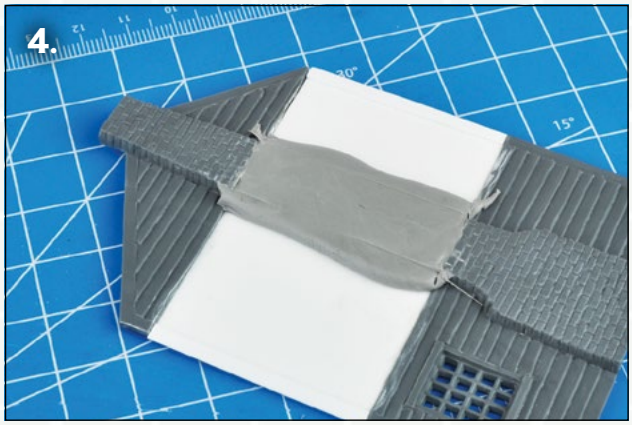
1. For the side wall with the chimney I made two cuts: first removing the “bump-out” (for use on the rear of the building) and then cutting off the top of the wall in order to extend it.



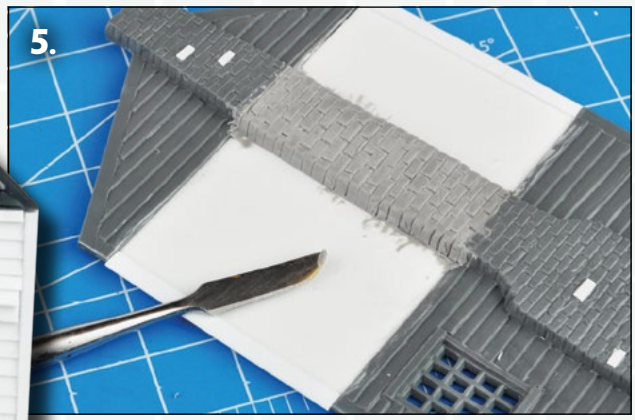
2. After taking measurement of the height of the rear wall, I cut a piece of 1mm sheet styrene to fit between the two “halves” of the kit wall. Then, as with the rear wall, I used offcuts of styrene to add support to the structure.



3. I then glued some more offcuts to the front of the piece, helping to bulk out the chimney before I added the putty. For my putty I used the “Greystuff” epoxy putty from Gale Force 9.



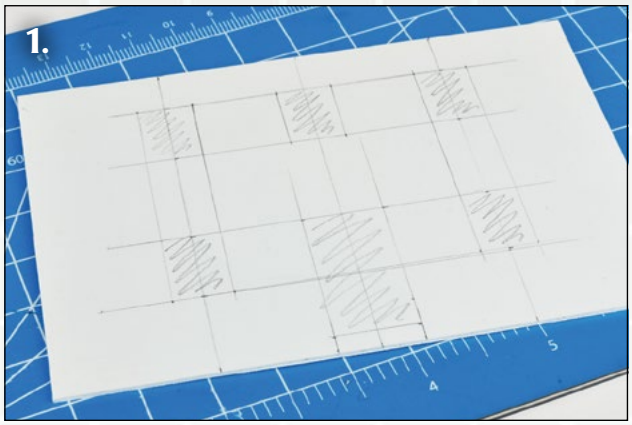
4. After mixing the two parts thoroughly, I quickly pressed it onto the wall and started to form the shape of the chimney. It is important to use some sort of lubricating agent* when working with the putty, so that it doesn’t stick to your fingers or the tools you are using.



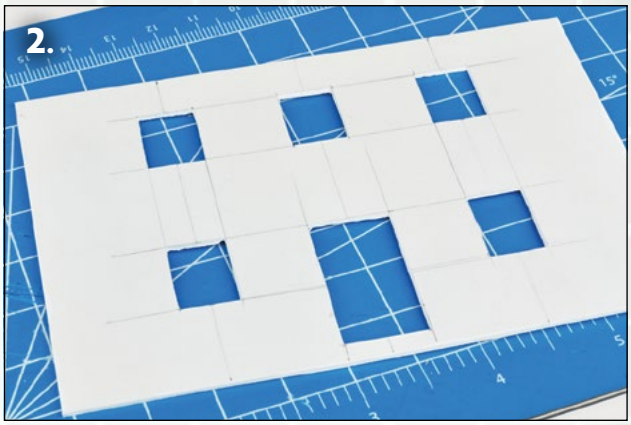
5. Once the putty was in place and at the right level (compared to the plastic chimney pieces) I used a sculpting tool to press in the lines for the bricks. This needs to be done quite quickly, as the putty starts to harden within 20-30 minutes. As my bricks were a bit more irregular than those on the kit, I added some small pieces of styrene (the white flecks in the photo) as random bricks to make those areas more irregular too.

6. Once the putty was dry, I was able to clad the styrene in weatherboards, and complete the opposite side wall.

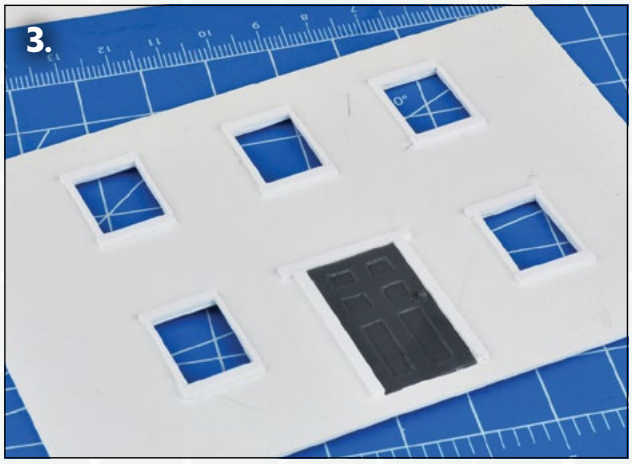
FRONT WALL



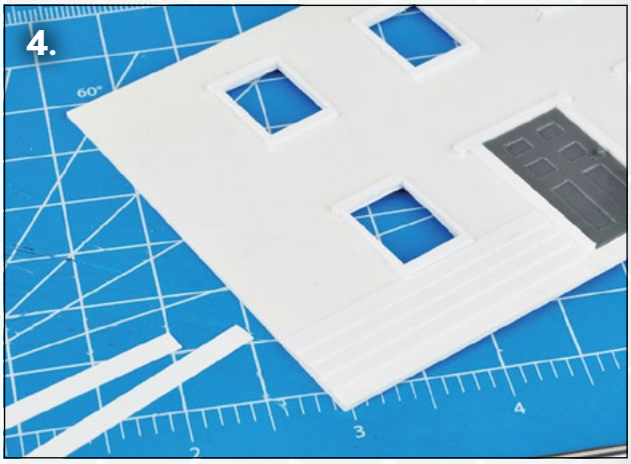
1. Once I had my side walls constructed I could determine the height for the “brand new” front wall. I cut a sheet of 1mm styrene to the appropriate size and then measured out locations for the front door and windows.



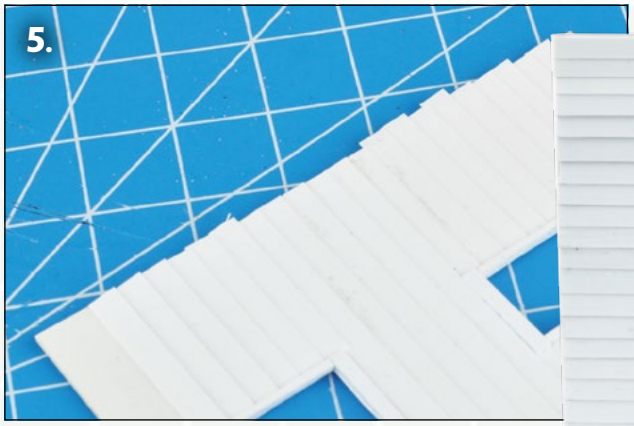
2. I carefully around scored each window (and the door) with my hobby knife a few times, and then snapped out the pieces. This is much easier than trying to cut all the way through the sheet styrene. You’ll also note I raised the bottom of the door a little. This was so I could add a stone step at the end.



3. I then used the original kit’s front door as my front door, and added a frame around it, and around all the windows too. These frames were cut from 2x1mm strip styrene, but could also be cut from your sheet styrene if you don’t have any strips handy.



4. The next step was to start cladding the walls in the “weatherboards”. I used 4x0.5mm strips of styrene and started at the bottom, overlapping strips (cut to length) as I worked up the wall.

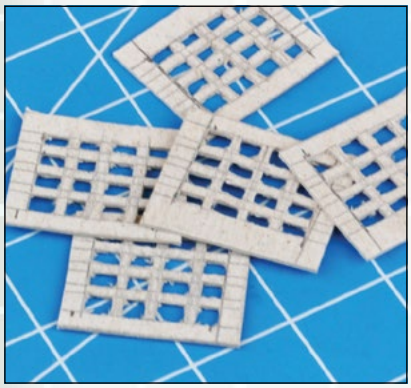


5. To ensure I had a “smooth” finish on the edges I cut most of my weatherboards a little long. Once the glue had dried, I was able to flip the wall over and carefully trim everything back to the wall edge, tidying it all up.

ASSEMBLY

Right: Once all the sides had been constructed it was a simple matter of gluing them all together and slapping on the roof. There were some slight gaps that were covered by either thin strips of styrene, or filled with Bondo™ Spot & Glazing Putty.

Below: The final construction step was to cut the window frames from a cereal box. I drew up everything first, then cut out all the "panes", and glued them into place, inside the openings on the front of the house.



Above: In this shot of the rear of the house you can see almost all of the original pieces of the Farmhouse kit.

Below: in this view of the front of the house you can see a few patches of a salmon-colored putty. This is Bondo™Spot & Glazing Putty that I use to fill small gaps on my styrene contructs. Once dry it can be sanded down for a smooth finish.

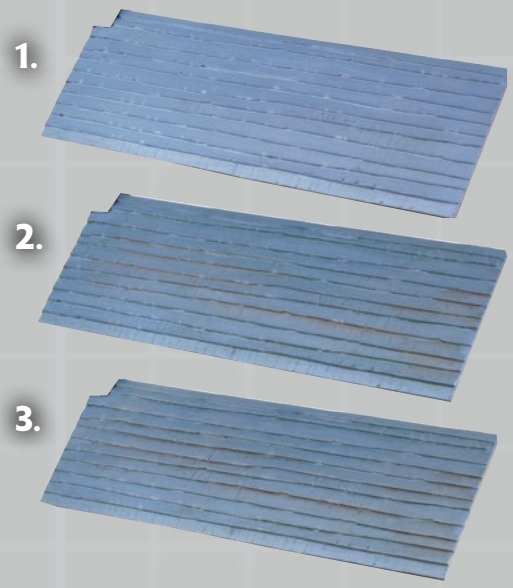
WEATHERBOARDS

1. Basecoat of Charred Brown (including the chimney)
2. Drybrush of Scarlett Red
3. Drybrush of 70:30 mix of Red Leather:Scarlett Red

TRIM

1. Basecoat of Astronomicon Grey (from Games Workshop)
2. Highlight of Dead White

ROOF



1. Basecoat with Sombre Grey.
2. To add some depth I used two washes on the roof in patches: a watered-down Charred Brown and an Algae wash (from Secret Weapon Miniatures).
3. Drybrush with London Grey.

CHIMNEY

1. Over the Charred Brown basecoat I did a drybrush of Red Leather.
2. A careful drybrush of Pale Sand to pick out the edges.

All colors from Vallejo Model Color or Game Color ranges, unless otherwise specified.

MODELLING TRICKS AND TIPS

EXPLOSIONS!

Ron Ringrose of The Essex Gamesters shares some of his modelling expertise in the form of creating dramatic explosions.

Sourcing some good quality quilting wadding is key to producing explosions. This is much lighter than cotton wool and gives a better smoke effect. A local haberdashery shop is the best palace to get hold of the quilting wadding.

STEP 1

Take a piece of wadding and size to the explosion you want to make.

STEP 2
Using Matt black spray paint, lightly spray the wadding to give a smoke like look.

STEP 3
Lightly brush paint the bottom of the wadding using a bright orange, yellow and red. These colours will form the base of the explosion, Put to one side and allow to dry.

STEP 4
Select a couple of plastic figures with a suitable pose for being blown up! Plastic are good because they are light, metal figures can be used, although it's harder to get the wadding to support the heavier figures.

STEP 5
Drill a small hole in the rear or bottom of the figure, insert a 3 inch long brass spear, or keebab skewer. Glue it and leave to dry, I use rocket max glue.

STEP 6
Use a suitable vehicle or building to be exploded, and fit the wadding in place with the flames to the bottom, (see the pictures) then push the spears into the wadding so you can't see the spear, but leave the figure on the edge of the smoke effect. This then gives the effect of the figure (or figures) being blown up!

As you can see, Ron employes his dramatic explosions on game boards representing battles throughout the ages, from Corunna (seen below) to WW2 and beyond.

HOW TO MAKE...
SIMPLE FENCES & HEDGES

Our regular 'How to'er' Paul Davies tells us how to make simple free-standing hedges for the tabletop.

The hedges in this article were intended for use with 1/100th scale (15mm) figures but the principles apply equally to other scales.

Cut hedge bases from mounting board or thick card. I get mine free as offcuts from a local picture framers. My standard straight was 80mm x 20mm; any longer and the hedgerows look too formal, shorter and they look too 'bitty'. That said, a few half length sections make it easier for the hedges to follow long and winding roads. Don't forget to cut some crossroads and junctions. You can just butt hedge sections together, but junction pieces are neater.

Brush PVA glue onto the bases and sprinkle on fine sand or gravel. Set aside to dry thoroughly. Cut lengths of pan scourer to the height required. For my 1/100th terrain, I cut the scourer in strips 12mm high which, when glued to the bases works out to a total height of approximately 15mm. Glue the pan scourer strips to the bases. I used a hot melt glue gun; UHU make a reasonably priced one. Spray the sections matt black and, when dry, give them a dry brush to blend them in with the base colour of your terrain, which in my case is dark brown.

To create the foliage of the hedge I use Javis Countryside Scenics No2 Mid Green Coarse Grass (Ref JCG2), but there are many more colour options in their range. Note the reference so you can match up future hedge sections. Brush PVA onto the top and sides of the hedge and then sprinkle on the 'foliage'.

Apply patches of PVA to the base and sprinkle on static grass. I use Autumn Flock (Ref: 591-36) from the Expo Landscape Scenics range. I particularly like this product because you can buy it in economical 100g packs.

Once completely dry, spray each hedge section with matt, or anti-shine, varnish to hold everything together, and that's it for your hedges.

It's also useful to have a few gate sections. I use 40mm long sections which undergo the same sanding and painting procedure as the hedge sections. The gate is made from strips of balsa. You can use matchsticks, but at this scale I find them too coarse and irregular in shape.

Glue the two outermost posts in position using hot wax again or superglue gel. Any resulting mound can be concealed with static grass.

Build the gate itself, starting with two uprights shorter than the outer posts. I use superglue because it soaks into the balsa to make a strong joint.

These gates consist of three horizontal bars. Taking measurements from the model, cut the upper and lower bars and glue them in position.

The middle bar needs to be thinner to allow space for the diagonal bar to fit.

Cut the ends of the diagonal bar at an angle so they'll fit neatly. Paint the gate black, drybrush it grey and add static grass so it will blend in with adjacent hedge sections.

How many hedge sections you make depends on your game scenarios, but they're so easy and cheap to make you might as well make loads of them whilst you're in the mood!

HOW TO BUILD...
17-18th C. EUROPEAN HOUSES

This 'How to…' is intended to make it easy (and cheap) to create some buildings in the style of those that would have been seen in the villages around Leipzig in 1813, but which could just as easily be used for other European buildings from the late 17th or 18th Century up to the Franco-Prussian War, if not WW2.

The three buildings in this article were originally designed for use with 10mm scale figures, but they can as easily be used for other scales by enlarging or reducing the images accordingly. The way in which I determine the correct size for my models is that they should look as if a figure could actually pass through the doorway or 'fire' through a window. Be aware however that the thickness of your figures' bases will impact on the apparent door height, and unless you base your buildings on the same thickness bases as your figures, there will have to be an element of compromise.

I use the term 'images' deliberately as these are not plans as such but images that can be printed out and, with a relative minimum of work, be assembled to make simple buildings.

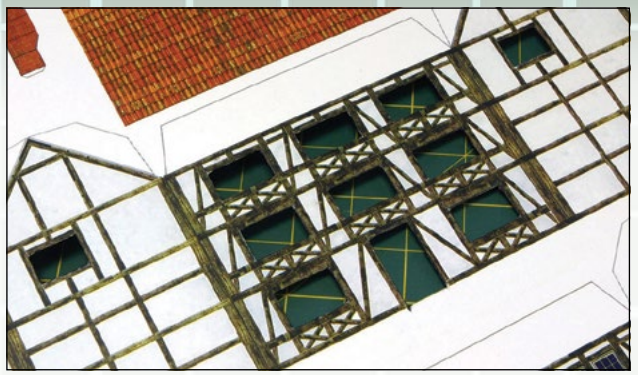
The plans should be printed out on as thick a cardstock as possible. My ink jet printer is not too great and sometimes anything thicker than 80gsm gets stuck in the machine feed. Having said that the standard of printing and also the quality and resistance to fading, are far better when using a laser printer.

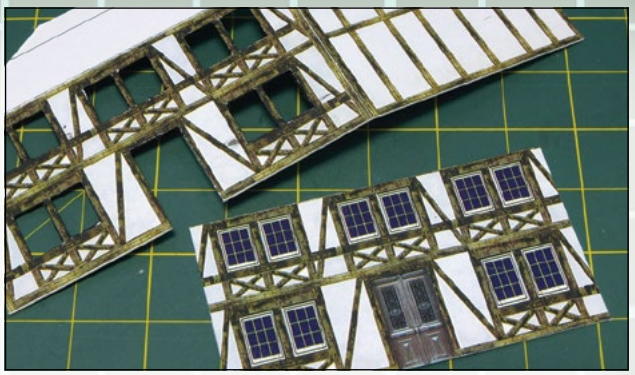
My local copy shop charged £0.85 per A4 full colour sheet on 300gsm coated card which seemed pretty reasonable. Be wary of printing on a heavily-coated material however, be it card or photo card, because sometimes when you cut the pieces out there's a tendency for the coating to chip or lift, which is a pain. You can reduce the likelihood of this happening by always using a very sharp, if not new, blade, and a good quality cutting mat.

The construction of these models follows the same basic procedure and technique. But first, some general hints and tips.

You can simply print out these models; glue the walls and roofs together and leave it at that, but a bit more work by recessing the windows will produce a subtly better looking model.

Assuming you decide to go for this option, let's go through the construction process, which is broadly similar for all three models, the only difference being the roofs which I have varied to reflect some of the different roof designs common in Europe at the time.





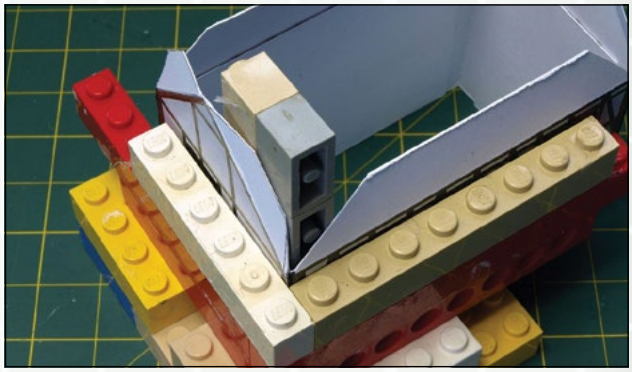
CONSTRUCTING THE WALLS

It's always easiest to cut out the window and door apertures and score the fold lines when the component is part of a larger sheet, if nothing else the component doesn't slide about as much.

Your card buildings will look better without stark white edges, so either go over them with a black felt tip marker pen, or use a paint brush. If you decide to use a paintbrush you need to be particularly careful not to get paint on the front outer surface of the card. My method is to put the brush through the window or door aperture from the front and then draw it back through the aperture lightly resting it on the edge as you do so. This method ensures that most, if not all, excess paint will be on the inside of the card, not the outside.

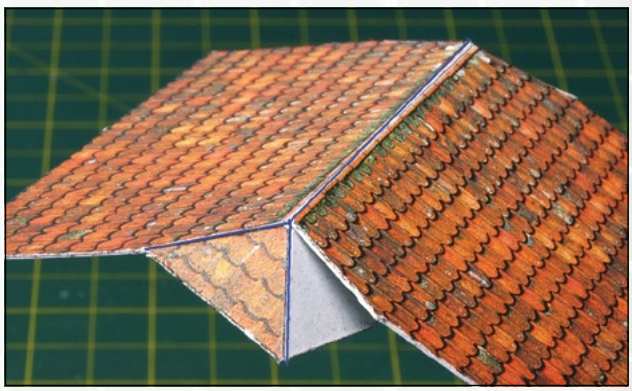
With the apertures cut out and the folds lightly scored, the next step is to add the recessed windows and doors. You don't need to do this individually, just print out an extra sheet and trim the walls containing the windows etc. so that they are slightly smaller than the outer walls and won't restrict the folding.

TIP: When you trim the 'windows and doors' sheet, although you need to cut in from the edges to ensure that the extra thickness walls will fold neatly, trim the lower edge exactly along the bottom of the printed area. Doing this will make it easier to position the 'window' backing sheet because the bottom edges of the inner and outer pieces will easily align, so you only have to worry about the vertical alignment of windows and doors when you glue the inner piece in position.



Apply glue to the flap at the end of the wall section and glue the walls together. I use PVA glue. Be carefully which type you use. Some PVA glue sold in art shops has clearly been watered down. Whilst this might be OK for sticking cut out pictures onto a flat background, it's useless for assembling card models where you need a glue that will hold components together firmly, yet allows a little time for slight adjustments. I use the PVA that can be found in builders' merchants. It's very thick but it means that I can choose exactly by how much I need to dilute it depending on the application.

As regular readers will know, I am a great fan of Lego® when it comes to creating a precise right angle. I've used them for many years and have never been disappointed.

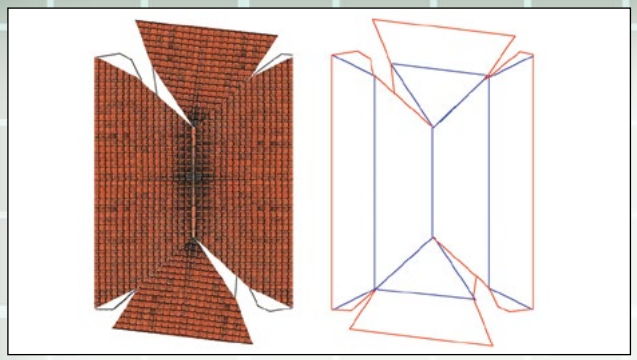


MAKING THE ROOFS

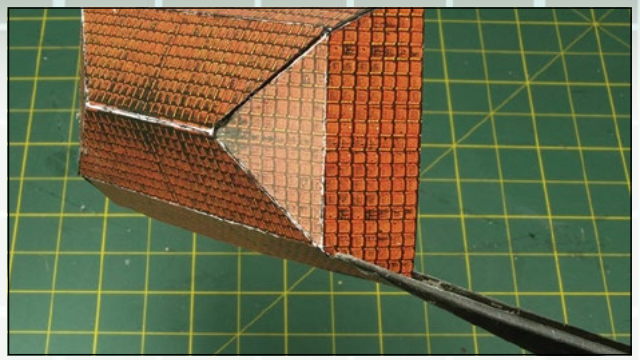
As you will see, the buildings have different roofs. The easiest one to make is the ridged roof; simply score (lightly) along the centre of the ridgeline, fold it, apply glue to the flaps on the wall piece and glue it into position.

So, lets look at the other roof options. First, the half-hipped roof.

I suppose this is basically a ridged roof, with the ends cut at an angle. Relatively simply to construct. The score lines are shown in blue on the photograph, which shows one end of the roof prior to gluing.

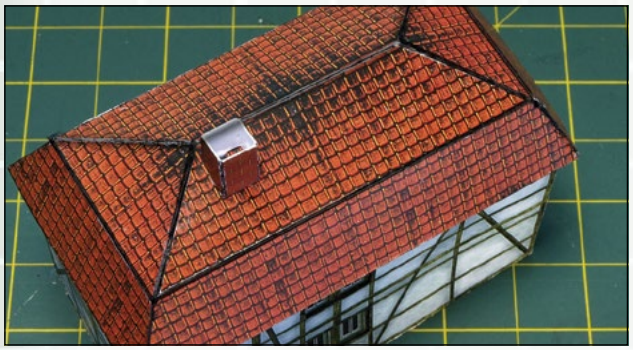


And finally, to the tricky one; the mansard roof (a.k.a. French curb roof). It's not THAT hard to make. Or, to put it another way, it's a lot easier to make than it is to design! By way of explanation, the mansard roof was a cunning way to make the roof or loft space more usable. The steep sides created a larger and more practical living area. In effect, all four sides of the roof had two different roof pitches. The lowest and steepest pitch was usually 60˚, whilst the upper section was at a shallower pitch of 30˚.



To simplify where you have to cut or score without ruining the look of your building, the image (above left) shows the roof and the adjacent schematic shows which lines to cut (the red ones) and where to score (the blue ones).

Assembly follows the same technique. Glue the flaps starting with the ones nearest the ridge line. The flaps are quite small so I use long, thin, pointed tweezers to hold the assembly together while the glue dries. Lockable tweezers are particularly useful because you can use them to hold a joint together and then leave it to dry while you do something else.



GENERAL NOTES ON ROOFS

When you've glued the roof together, paint the underside of the roof black about 10mm in from the edge, and don't forget to 'paint' any exposed edges.

CHIMNEYS

Assembly of the chimneys is really simple: score, cut out, and glue. Nothing else to say really, except that I find it's easiest to glue the chimney to the roof and then, once it is set firmly in position, add the chimney top.

DORMER WINDOWS

Having created some extra living space in the roof, letting in some light was important and so dormer windows that projected from the roof were developed.

Construction of these follows a similar technique to creating the walls, namely cut out the window, and score the fold lines. Darken the exposed white card edges. Add a recessed window and glue the assembly together.

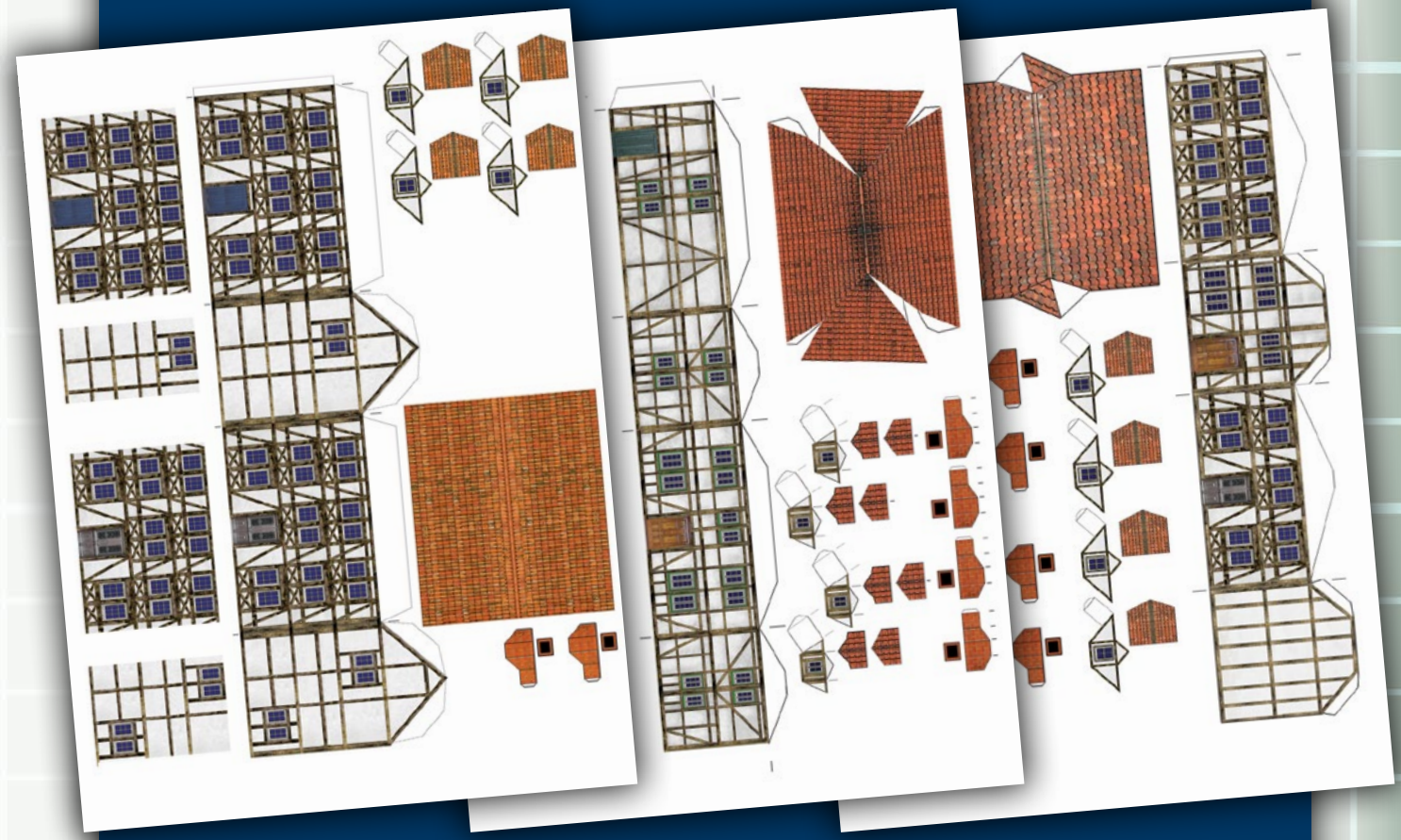
It's difficult to precisely determine the exact size for the roof to your dormer window; a slight variation in the position of a scored line or of a fold will make a difference. The best method is to cut a piece of paper roughly to size and then, once you've cut it so that it fits, trace its shape onto the printed roof image. When you're happy with the fit, glue the roof in position.

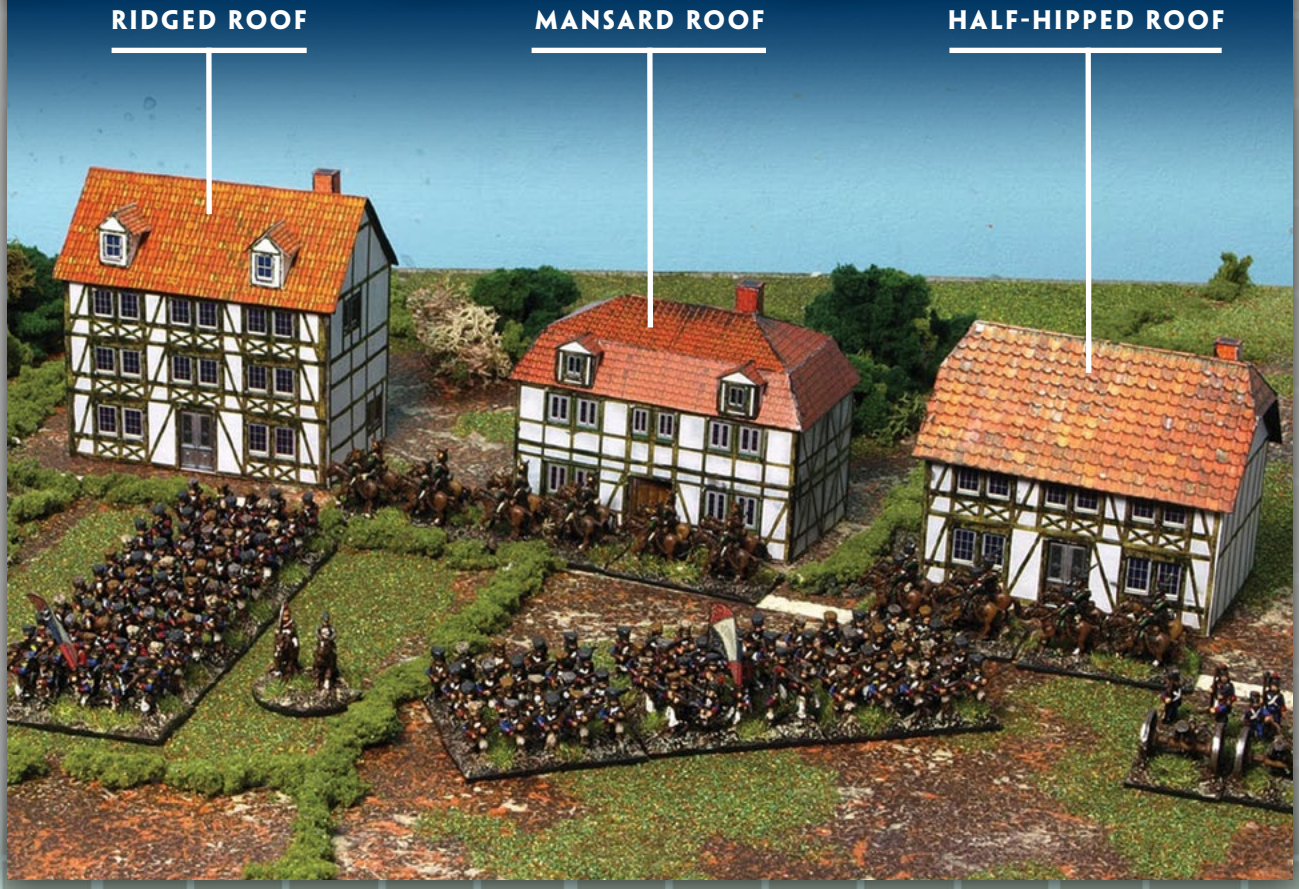
And that's basically it. You can further enhance your models by basing them, or adding fences etc. I wanted to keep these particular models as generic, and flexible in use as possible.

Finally a brief 'thank you' to Nik Harwood for loaning me his 10mm Napoleonic figures to 'populate' my photographs of the finished buildings.

WARGAMES illustrated.net

Paul Davies has created some beautiful designs for you to download from our website. Print them out at full-size for 10mm scale buildings, or enlarge them to suit your scale. If you are feeling very ambitious you could even build over these plans for 25-28mm, adding the timbers and texturing the walls as you see fit!



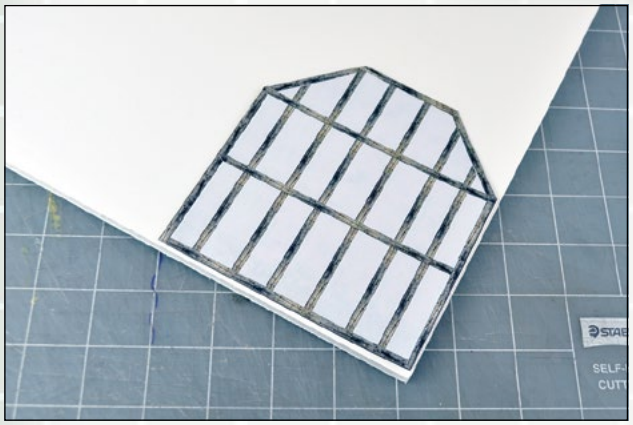


AND BUILDING IT IN 28MM...

By Dave Taylor

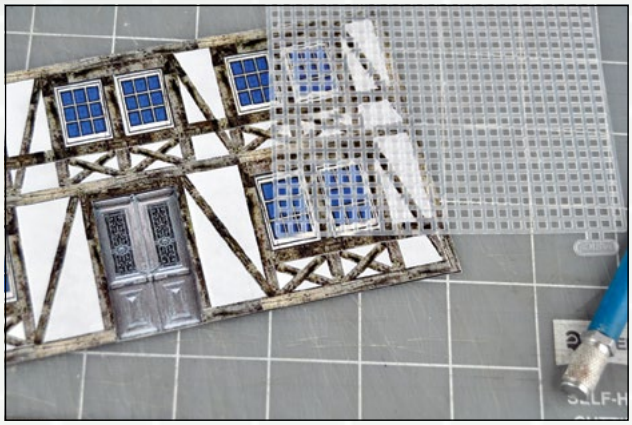
Quite often we present one of Paul Davies' excellent "How To..." articles and suggest you try it out in a different scale (or at least one appropriate to your model collection). Well, we thought we'd show you one way to go about rescaling this project for 25/28mm Napoleonic wargaming (my personal favorite for scale and period).

To start with I gathered a variety of materials (some pictured right), including a sheet of 5mm foamcore (not shown), printouts of the walls and roof of a building (scaled 250%), a bundle of coffee stirrers from my local coffee shop, and some sheets of "plastic tapestry canvas" for use as window frames.



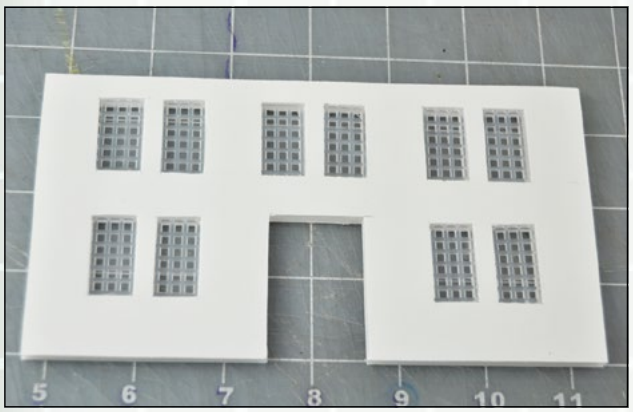
The first step was to cut out the plan pieces from the paper and lay them on my sheet of foamcore. I carefully traced around them and then cut out each wall panel.

It is important to note that you'll need to trim off 5mm from each end of your front and rear wall panels (or the thickness of you foamcore) so that you can butt them up against each other without extending the overall length of your house.



I've recently discovered this great (and relatively cheap) material at my local arts & craft store. It's a plastic sheet used by crafters to create simple tapestries. It also happens to work well for small scale windows with multiple panes, so most windows from the Renaissance through to the early 20th Century.

I laid the sheet over Paul's plans to get a good idea of size, then used a sharp knife to cut out all the windows I needed.



Here you can see the windows all in place in the front wall panel. As my plastic canvas windows didn't quite match the original dimensions of Paul's plan, I had to do a little shuffling.

To reduce the chances of these plastic pieces popping out, I glued them in place with PVA glue. This had the added advantage of coating the exposed foam, protecting it from the spray primer that was to come.

Once everything was dry, I proceeded to assembe the wall panels. Here you can see that my daughter lent me some of her Lego bricks so that I could use Mr Davies' should-be-patented method of keeping walls square while the glue dries.

You'll notice the exposed foam at the right end of the front wall. Not to worry, this would be covered up by a coffee stirrer.

The next step was to assemble the roof. Fortunately Paul had planned the roof with a pitch of 45˚, meaning that I could trim 5mm of foamcore from the top of one of the roof panels (shown above) and glue the two roof panels together with a 90˚ butt joint (using the Lego method again, of course).

As I'd chosen the half-hipped roof, it was a little tough to get the 'hip' section to sit in place correctly. Careful slicing with a very sharp knife helped me trim the interior foam right down so that the panel could sit neatly in place. In hindsight, I probably should have used some thin card for this section.

I set the roof aside to fully dry, and set to timbering the house. Paul's plans are quite detailed, particularly when it comes to the exposed timbers. Unfortunately my coffee stirrers, although cheap and handy, were too wide to match his plans. Instead I chose to alter the timbering to create something a little less sophisticated, but I think it still conveys a similar impression.

Once the house was timbered, and a foamcore door added, I was ready to glue on the roof. I let this dry overnight for extra rigidity, and then set to painting the next day.

You can see the results below. Not too shabby, I think. The key to getting an 'accurate' weathered timber coloring is to start with a dark brown, but drybrush your timber with successively lighter greys, as I've done here. The roof tiles are simply the printouts glued directly onto the roof panels.

One final tip: When building the small dormer windows I suggest using thin card. The cutting and trimming of small pieces of foamcore might take you as long as the rest of the house to get right. I speak from experience. Enjoy!

HOW TO BUILD...
ANGLO-SAXON TENTS

A sea of canvas may have been a common sign of an Anglo-Saxon army on the move, just as it was with many other medieval armies. Anglo-Saxon manuscripts, such as the Eleventh Century Old English *Hexateuch* (shown below), which recasts the heroic warriors of the *Old Testament* as Anglo-Saxon kings, show the importance of life under canvas for an Anglo-Saxon army.

I wonder, too, whether the famous account of King Alfred trying to measure time by a candle, guttering in draughts in tents, may have been an indication of the king's activity as a scholar during the campaigns against Viking armies. Therefore, to think of tents as functional things is again to miss the point of the Anglo-Saxons in their military campaigns. Tents would have been about display and status just as much as with so many other elements of warfare, and it's worth considering this when putting Anglo-Saxons on your gaming table. Although it's of course easy to spray a model tent with a base colour, give it a wash and Bob's your uncle, it would seem a pity not to send the brightest and best (and richest) in early medieval society into battle without them being able to display what they thought were their home comforts.

So, when Renedra released plastic models of ridge tents and bell tents in affordable sets for 28mm figures, I jumped at the chance. Though probably a little small for really high status gatherings, and, I suspect, intended for Napoleonic and American Civil War armies, they probably give the basis for what gamers need to supplement an army. In any case, if you do wish to use tents to set up a baggage element for your army, smaller tents are probably just the ticket for the 'flavour' of the period - if they don't look ridiculously small - and will give the right effect without taking up too much of the table.

Surely a tent is a tent is a tent? Perhaps. The idea of a portable shelter is pretty universa,l but there are some aspects of Anglo-Saxon tent-construction which seem specific to the time. I daresay that few of your opponents would bat eyelids if your Anglo-Saxon army were accompanied by ordinary ridge tents and bell tents (the latter, of course, being absolutely fine for an early medieval encampment, though I suspect that they would have been larger than those portrayed by Renedra).

However, there are some types of tents which seem to be specific to an Anglo-Saxon context, and having a go at making an 'Anglo-Saxon tent' seemed appropriate, and the Renedra ridge tents are spot on for conversions, when a bit of 'greenstuff' is used. If you haven't used this amazing material before, this is an ideal first project. As my initial tents (and use of greenstuff) were a bit rough, *WI* modeler Matt Parkes stepped in to create the following examples.

There is, understandably, very little archaeological evidence for medieval tents. They might leave holes in the ground when they are set up but those posts tended to be removed so they don't leave the sort of 'post-holes' so beloved by archaeologists. It's a case of trying to work out possibilities from manuscript

illustrations, and the Old English *Hexateuch* illustration lets us work out that, despite looking at first glance like a bell tent, it was a ridge tent.

Step One shows the use of green stuff to change the shape of the tent. The best thing to do here is to cut triangles of thin card or plasticard as a base before adding a layer of putty to give the ruffled canvas look.

As far as I can see it from the manuscript image, the height of the tent needs to be raised. In Step Two you can see the horizontal pole that sticks out at either end that gave the tent its structure. Presumably such poles were attached to two vertical posts, one at each end of the tent, but to indicate the horizontal pole on the model plastic rod can be used. To build the height of the tent sides you could use greenstuff (as I did on my original tents) or you could add a strip of thick foil, as Matt has in this example.

Step Three shows a basic white undercoat with the pattern marked out in pencil. The letters show the blue, yellow and red basic colours marked in vertical stripes. This is a technique more suited to the painting of AFVs which I found very useful, and will probably use it again as it saves having to remember quite where you were when the doorbell rings and you have to put the paintbrush down.

Step Four shows the yellow part of the pattern applied in paint. Try to make sure that the pencil doesn't show through the paint if you use acrylics. Also, I considered the strip of material at the top of the tent to be something to add to waterproofing the ridge at its least watertight, but that's just a vaguely educated guess. A little patience and a pattern which reproduces that on the manuscript illustration adds a bit more colour, though I suppose with all those stripes there's probably enough colour there anyway. (I doubt very much whether the Eleventh Century illustrator of the Old English *Hexateuch* was setting out a template to be copied, anyway.)

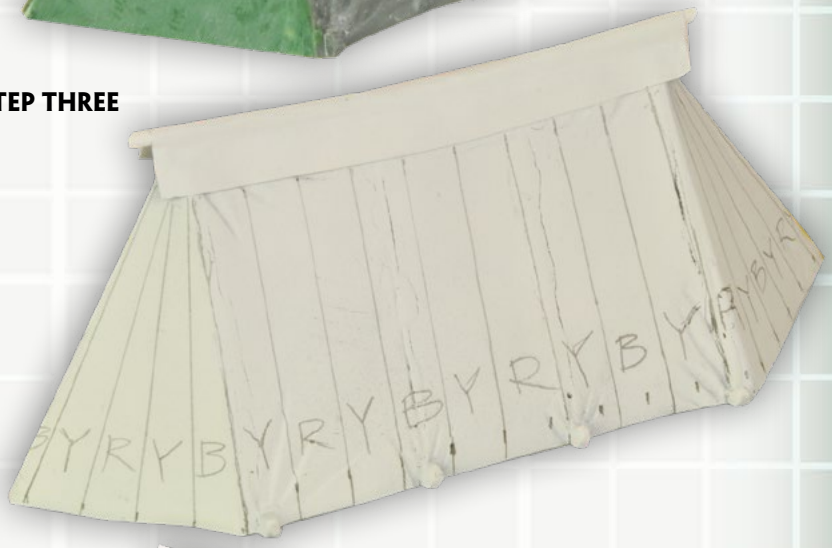
The top photo on the opposite page shows the finished item on wargames terrain, complete with a contemporary figure for scale. Matt has presented the tent in his typically clean style, although I wonder, with all that bright colour, if it might be worth subduing the colours a little. (Even aristocratic tents could probably get a little mucky, I suppose.)

So there you have it. A tent, brightly coloured, a little subdued in places, ready to accommodate an army in an authentic fashion. Perhaps the effect is more like one of the Tigers made from converted T-34s in *Saving Private Ryan*, but the point is they somehow look different and worth the effort. Just a few more to go...

STEP ONE

STEP TWO

STEP THREE



STEP FOUR

AMERICAN CIVIL WAR IRONCLAD

HOW TO BUILD AN AMERICAN CIVIL WAR IRONCLAD

The model that inspired this 'How to…' was the CSS *Atlanta*, which was converted from a Scottish merchant ship, the *Fingal*. Her involvement with the Confederacy started in September 1861 when she was bought by James Bulloch who was looking for a ship to deliver the military supplies which he'd purchased in Europe, back to Savannah, Georgia. To allay suspicion and conceal his ownership, Bulloch hired a British captain and crew.

Thanks to thick fog on the American coast, the *Fingal* made its way into the Savannah estuary without being intercepted. Unfortunately a tightening US blockade made it impossible for the *Fingal* to break out after off-loading its cargo. So it was decided to make use of the ship's hull, and in early 1862, work began to convert the *Fingal* into what was to become the *Atlanta*. In July she had 'sea trials' which were not particularly encouraging. She was slow, and her deep draft meant that in shallow water she was something of a liability. Oh, and she leaked too!

The *Atlanta* was commissioned in November, but it wasn't until March of the following year that she was able to slip through the Union blockade with the intention of attacking the Union base at Port Royal. However the plan didn't work out, and the *Atlanta* retreated when three Union monitors appeared to reinforce Port Royal.

In a subsequent attempt at engagement in May 1863, one of *Atlantas's* engines broke down and she ran aground. Her commander, Captain William Webb decided to float her off on the high tide, and then lie in wait to attack two Union monitors using the *Atlanta's* spar torpedo and guns.

It was a good plan, but unfortunately the *Atlanta* ran aground.. again, which gave the Union monitors time to get in close and after a short and one-sided combat, Webb surrendered the *Atlanta* to the Union forces. The Union Navy improved the armament of the *Atlanta*, and on 2 February 1864 she was re-commissioned, and took her place in the North Atlantic blockading squadron to fight against her former owners.

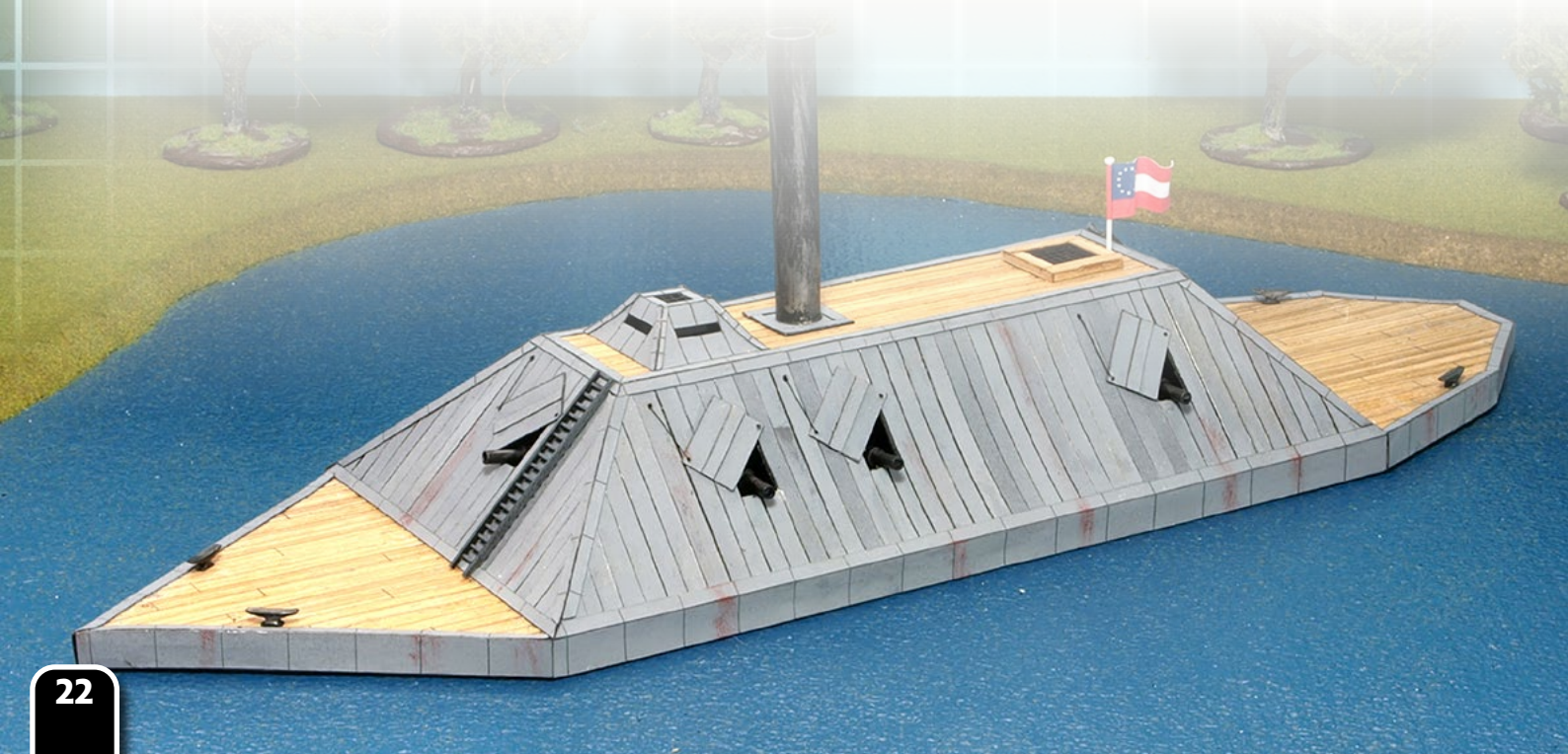
The *Atlanta* was decommissioned on 21 June 1865.

Her early combat career was not exactly illustrious to put it mildly, but as a subject for a model it is interesting, not least because the CSS *Atlanta* can be used for either side with no major change to the exterior detail, apart from a flag!

DESIGNING THE MODEL

When designing a freelance model, or adapting an historical subject for wargame use, be it a building, or in this case a ship, various compromises usually have to be made.

In the case of the *Atlanta*, the original was 50m long x 10.7m wide, (165ft x 35ft wide). The following table gives an idea of the size of a scaled down model, in several popular scales. I've taken some liberties with the figure size to scale conversions because we all know that manufacturers all seem to have their own interpretations of what size a figure should be, which is generally little more than a cunning ploy to tie you into their figure range and squeeze out the opposition, but don't get me started on that!



PLANNING AND SCALING

Dimensions of CSS *Atlanta*		Length	Width (Beam)
		50m (165ft)	10.7m (35ft)
Figure size and arbitrary scale		Scaled-down dimensions	
10mm	1/200th	0.25m (0.825ft)	0.054m (0.175ft)
15mm	1/100th	0.50m (1.65ft)	0.11m (0.35ft)
28mm	1/50th	1m (3.3ft)	0.214m (0.7ft)

Even allowing for a certain amount of artistic licence and 'rounding up', whichever scale you intend your model to be, without some adjustment, it is likely to be enormous, and dominate your playing area.

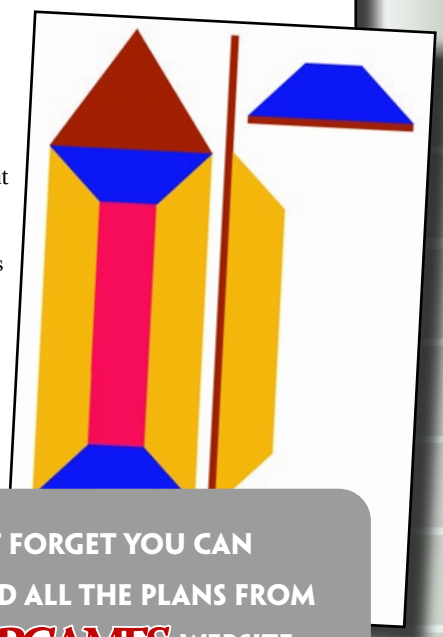
As with building model houses, compromises are necessary unless the model itself is intended to be a part of the playing area and not just an enhancement to the overall look of the game. When thinking about buildings, wargamers often solve this issue by having a single building representing perhaps a small village, and two or three to represent a town or even a city. However this approach doesn't really work when building a model based upon a specific ship. In this case you have to bring the model down in size so that it retains the general look of the original, yet doesn't look ridiculous when 'crewed', or placed alongside figures.

The *Atlanta* was relatively long and thin, probably due to the origins of its hull as a sea-going vessel. I decided therefore to keep the proportions similar but reduced my model, which was intended to be used with 28mm figures down to approximately 42cms long x 13cms wide and 6cms high excluding the funnel. It was said that the angle of the *casemate** was 30°, but it wasn't practical to follow that because it would force the width of the vessel outwards to at least make it look as if a 28mm figure could fit inside it, with the resultant need to increase the model's length to avoid it losing its 'sleek' appearance, which would have restored the model to a size that would be too dominant for use on most wargame tables.

**casemate:* an armoured structure from which guns are fired.

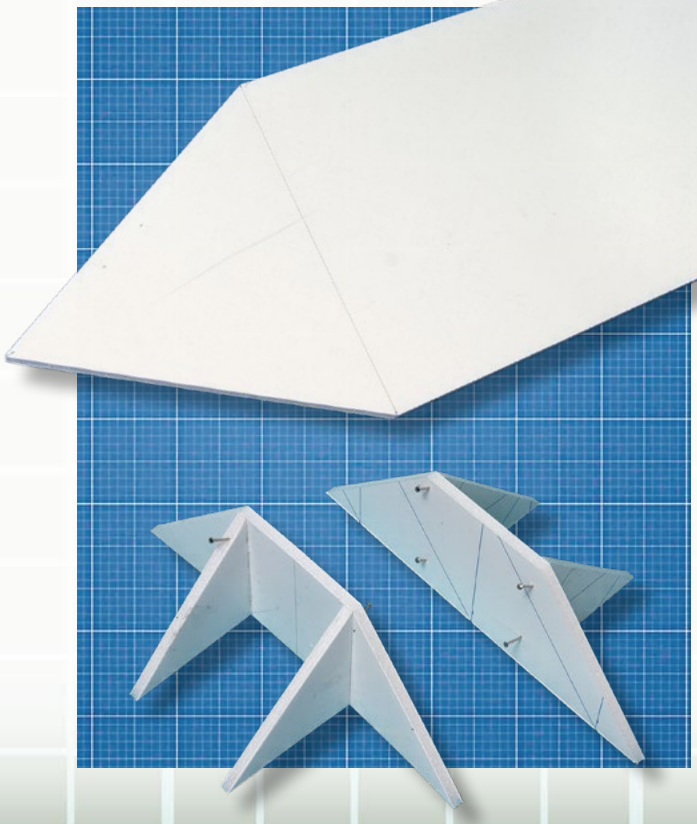
PLANS

As the foregoing will have demonstrated, this model is representative of an ACW ironclad and as such the plans are just a starting point in the construction. As the build progresses you will find yourself using the plans as a rough guide, but taking dimensions from the model itself. The plans for this model can be downloaded from the *WI* website:



DON'T FORGET YOU CAN DOWNLOAD ALL THE PLANS FROM THE WARGAMES illustrated WEBSITE.

CONSTRUCTION



The basic deck plan was scaled to size, and the dimensions transferred to a piece of 5mm thick foamboard which was then carefully cut to shape. Use a sharp, preferably new, blade otherwise you're likely to rip the foamboard rather than cut it neatly.

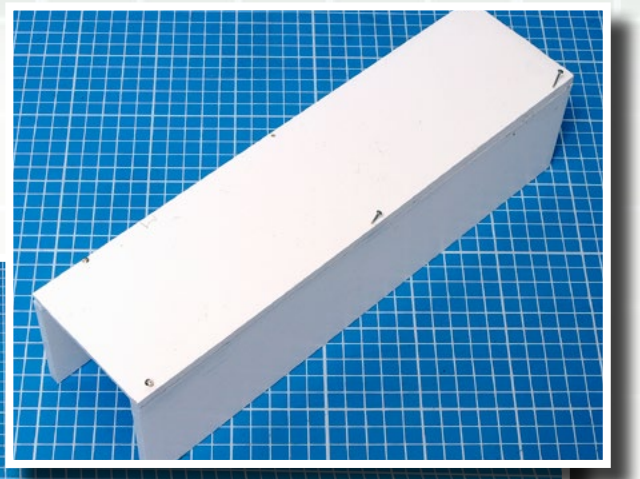
As you can see, one of the attractions of using the CSS *Atlanta* as the basis for this model is that the basic shape of the hull is made up from straight lines, not curves.

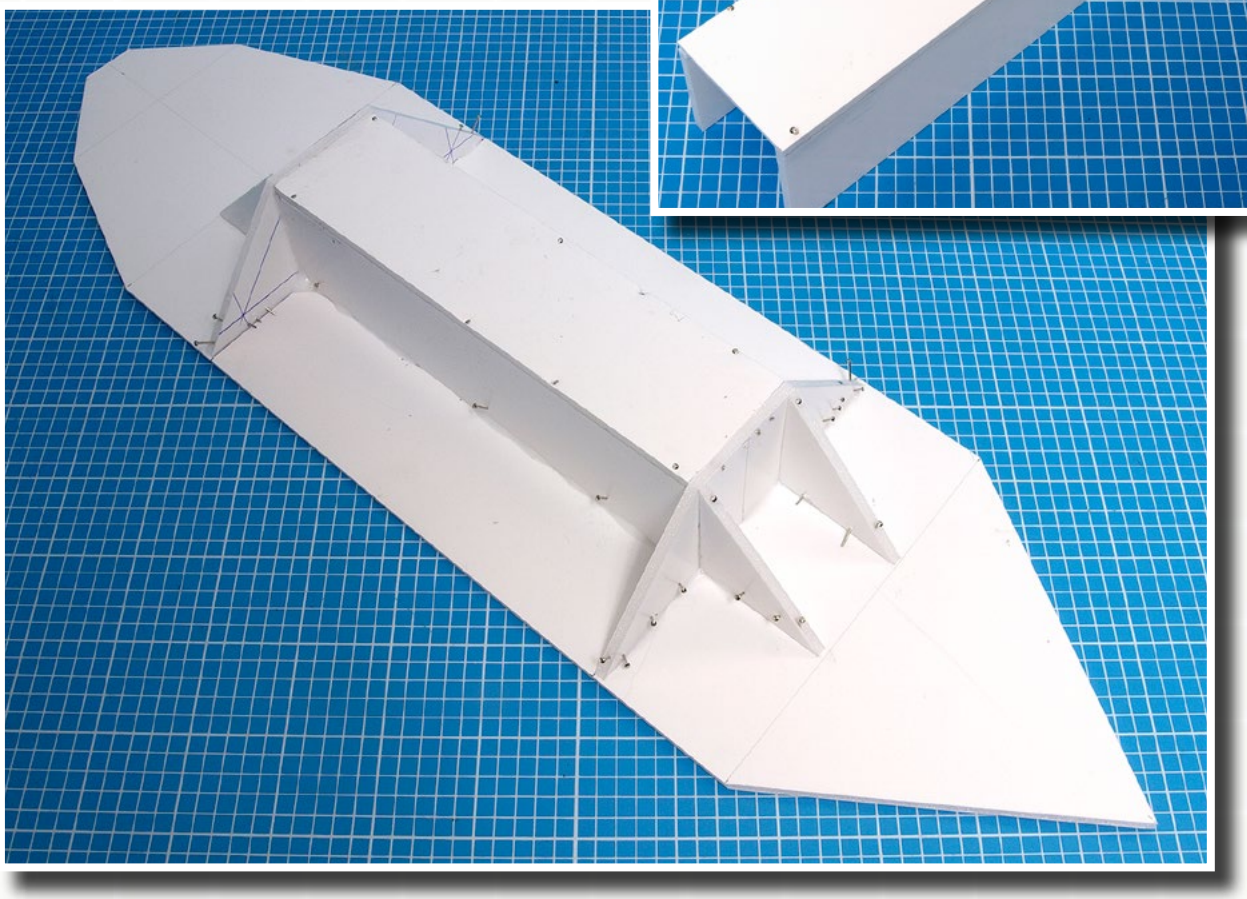
The armoured casemate slopes inwards from all four sides. I found that the easiest way to construct it was to start by creating two profile pieces at each end of the casemate.

Cut two profile pieces from 5mm foamboard, and add a pair of angled supports to each.

The upper deck of the casemate needs to be supported, so I created a box from foamboard to fit between the profile pieces. Carefully measure between the profile pieces, and fabricate a box from foamboard to fit between them. Pin and glue the top and sides of the upper casemate deck support together.

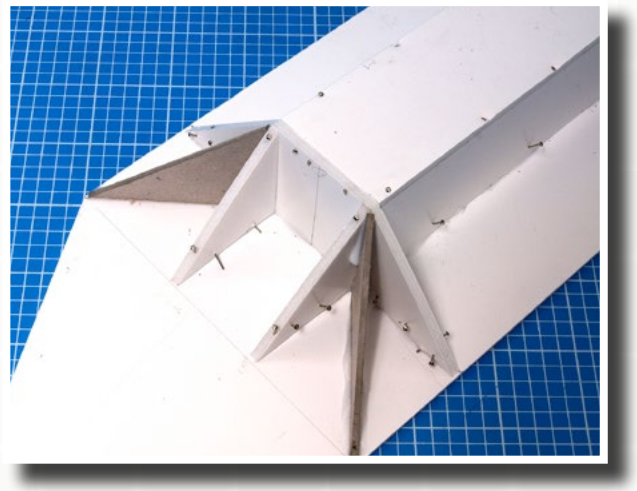
Fit the upper casemate deck support between the profile pieces to check the fit.

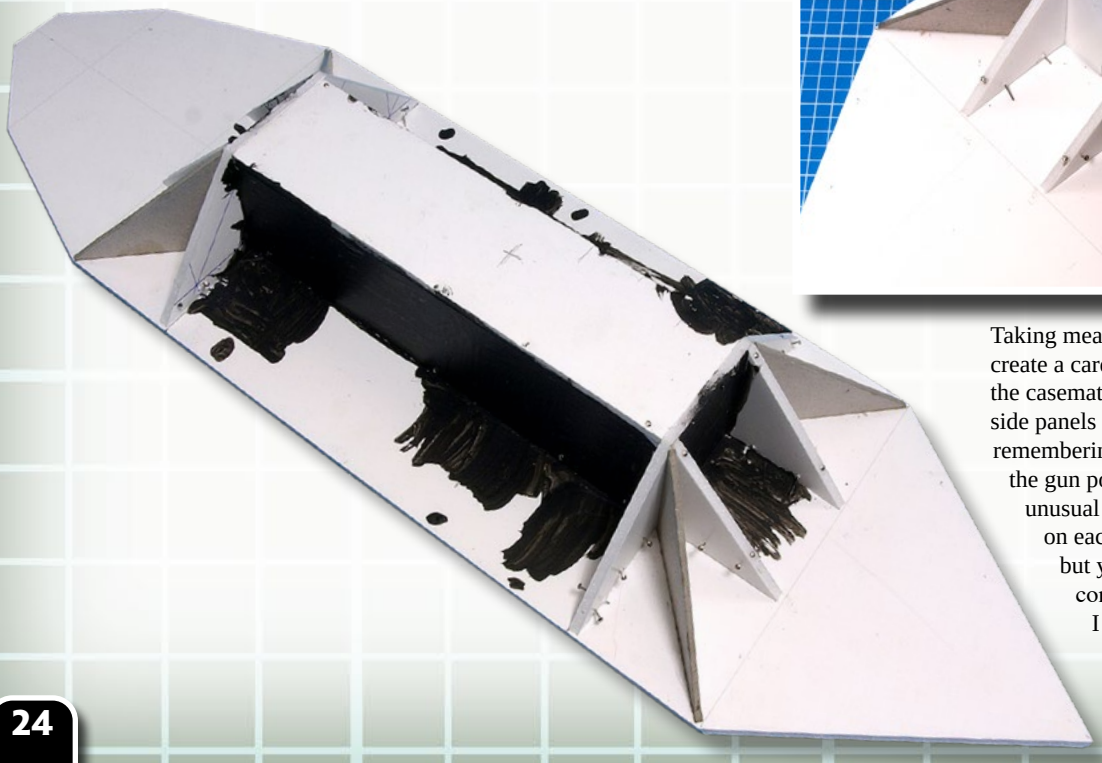




Cut some angled supports from card, and fit them between the supports.

Paint the areas inside the framework matt black, because you will be able to see through the gunports unless you intend to have them permanently closed, and why would anyone do that?





Taking measurements from the model, create a card template for the sides of the casemate and then use it to make side panels from balsa or thick card, remembering to cut out apertures for the gun ports. The *Atlanta* is possibly unusual in design in that the gunports on each side are slightly staggered, but you don't need to follow this configuration for your model. I presume that the reason for

this configuration was to allow space for the guns to recoil without colliding with each other in the case of firing port and starboard broadsides simultaneously.

The sides will be clad with individual pieces of card to represent the metal panels, so it helps to draw guidelines. Glue the two side panels in place.

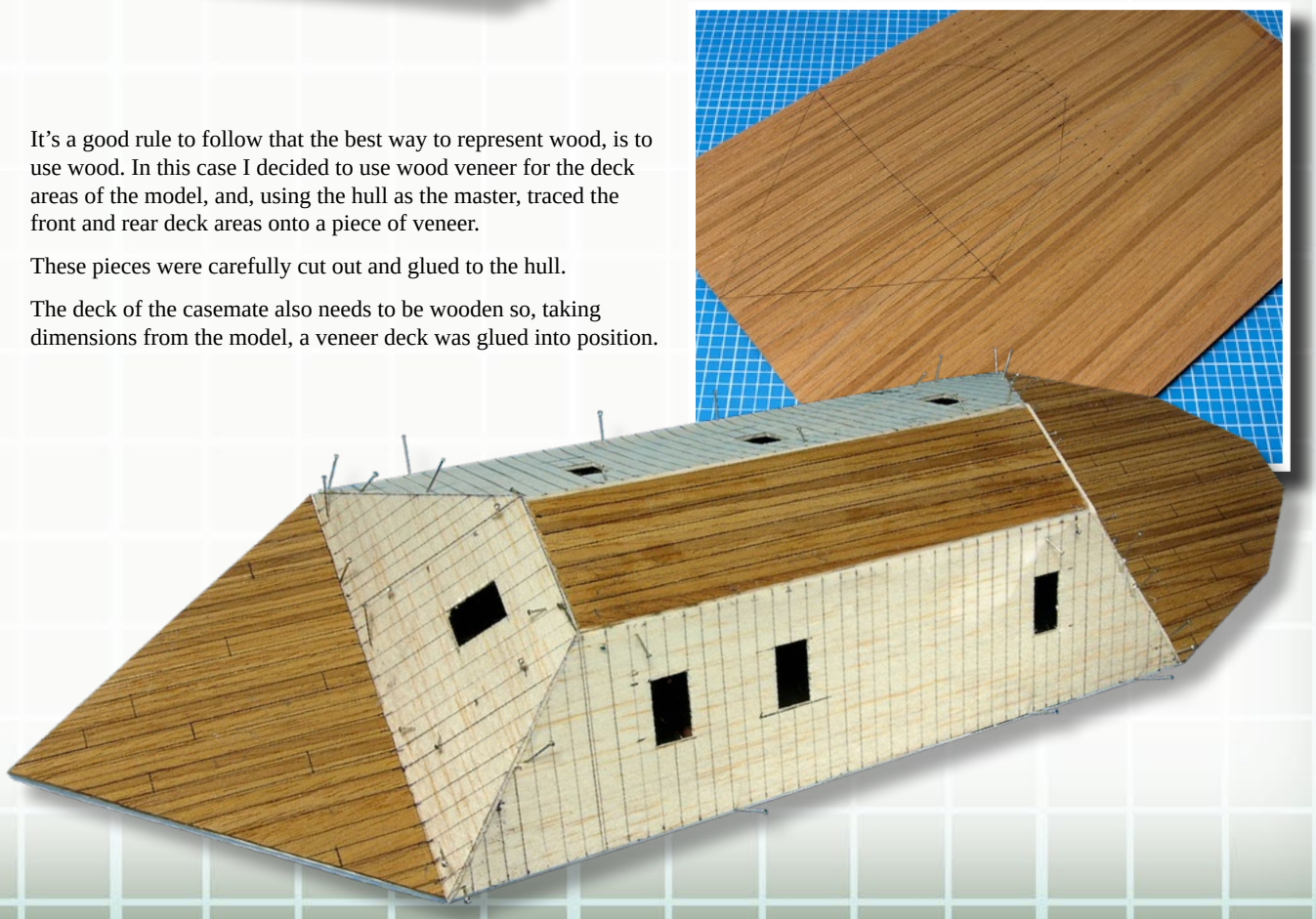
Then take measurements from the model to create a front and rear template...

And use it to create the front and rear panels which should be glued into position.

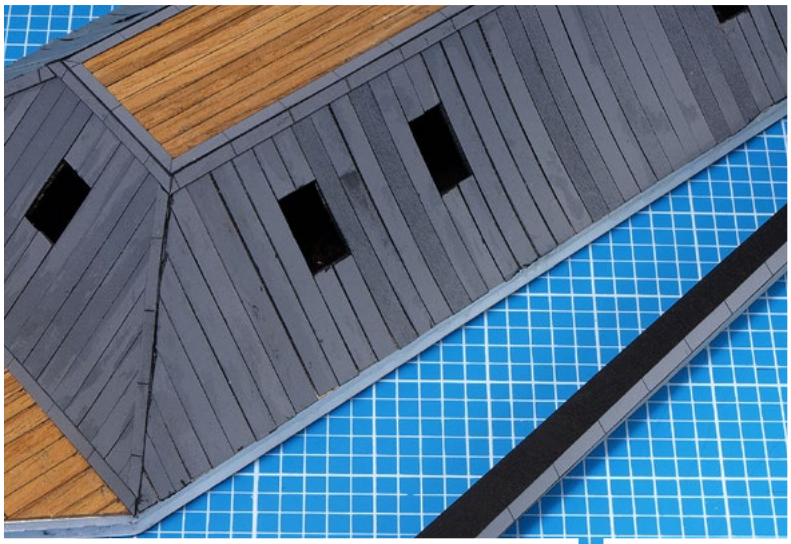
It's a good rule to follow that the best way to represent wood, is to use wood. In this case I decided to use wood veneer for the deck areas of the model, and, using the hull as the master, traced the front and rear deck areas onto a piece of veneer.

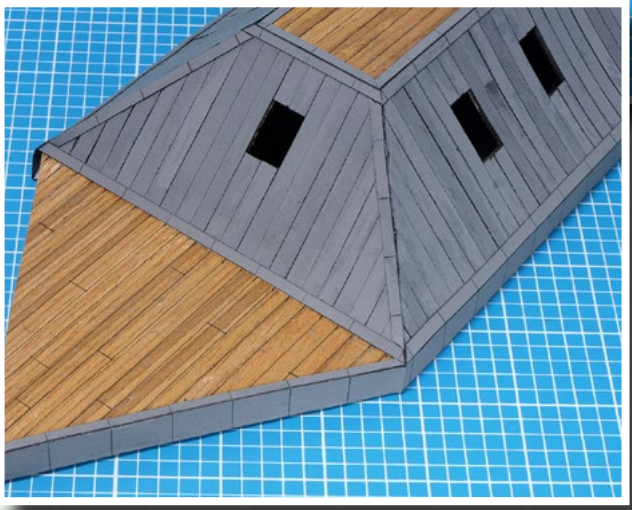
These pieces were carefully cut out and glued to the hull.

The deck of the casemate also needs to be wooden so, taking dimensions from the model, a veneer deck was glued into position.



FINISHING IT ALL OFF





To represent the armoured sides of the casemate I decided to glue on individual panels made from card. The problem with card is that the white edges need to be 'touched up' in some way, but for this model, I thought 'outside the box', by using black card which I then spray painted in grey. This method meant that any exposed areas of card would be black and not white. The previously ruled guidelines indicate the positioning and width of the card strips, which were carefully trimmed to size and glued into position.

To finish up the edges of the 'metal' panels, I cut strips of grey sprayed card and then suggested gaps between individual panels around the upper deck by ruling lines with a black fine point pen, and glued them in place.

Next I added the lower edge, and also one side of the angles for the front panel.

Before adding the remaining edging for the casemate, you need to add the 'armoured' edges of the basic hull, which was also created by taking measurements from the model, cutting strips of black card sprayed grey, and carefully scoring them so that they would 'wrap-around' the basic hull. Start with the pieces to go along the hull sides beneath the casemate. Note how the ends are angled to fit with the adjacent pieces.

With the main side pieces in place, take measurements from the model and make edge pieces for the bow section and glue one side in place.

Fitting the other bow piece is a little more tricky because it has to fit between the main side edging and the adjacent bow section.

The stern section follows the same procedure.

ADDING DETAILS

The upper deck featured a grating, presumably to ventilate what must have been pretty unpleasant conditions inside the casemate, particularly when in combat. The core element of this was the grating itself which I made from brass mesh. Its relatively expensive, so don't waste it!

Two frames were made from strips of balsa, and a piece of mesh cut to size was sandwiched between them.

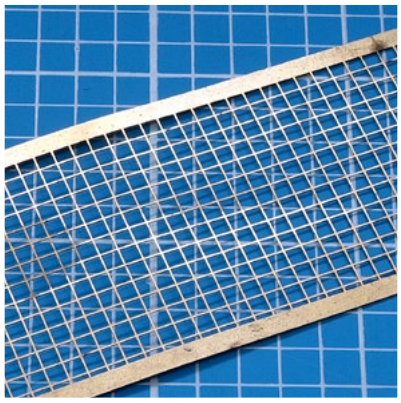
Paint the brass grill matt black, and glue thin strips of veneer to the top and sides of the balsa frame.

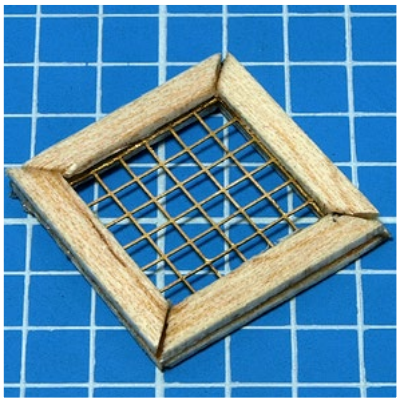
Carefully position the grating, and draw around the edges. Come in slightly from these points and cut a hole through the upper decking. Paint the edges of it black, and also the visible area inside the casemate.

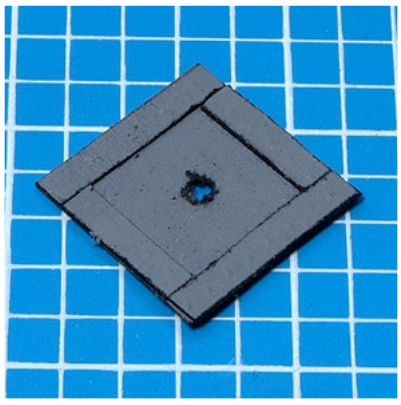
The bridge of the CSS *Atlanta* had the appearance of a pyramid with the top cut off. I created mine by first measuring the distance between the edging pieces on either side of the upper deck, and then using that dimension to create one of the four panels that formed the pyramid.

Once again I used black card sprayed black with panel lines ruled onto each side prior to assembly, and gluing into place. I also added a small square of brass mesh painted black on top of the 'pyramid'.

To finish off, I added a rim of grey card ruled with black lines to represent the individual panels.







Given that the ironclads were steam powered, they needed a funnel. I made mine from the case of an old ballpoint pen… remember the modelmakers' adage - 'throw nothing away'. To ensure a more secure fitting, I drilled a hole in the bottom of the pen and glued in a section of broken drill.. as I said, throw nothing away.

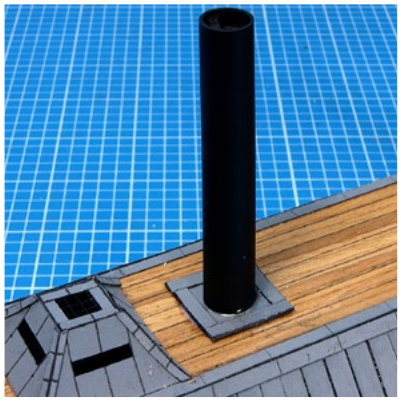
I sprayed the 'funnel' matt black.

I always try to incorporate an element of 'logic' in my models, and in this case it would have looked decidedly wrong to have a potentially hot funnel punching its way through a wooden deck; fire risk and all that Health & Safety nonsense.

So I cut a small square of grey sprayed card, added some edging pieces, and made a hole in the centre through which I could push the drill end.

This 'metal' square was glued to the upper deck and the funnel was slid in and glued in place.

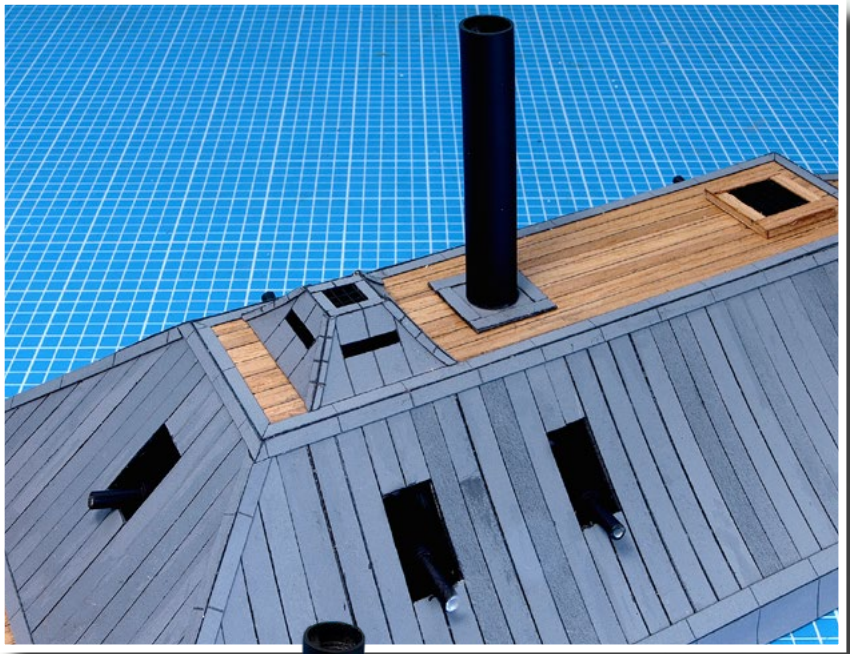
Ironclads featured various types of armament. Probably the most widely used on Confederate vessels at least, were variations of the Brooke rifle, which was



a rifled, muzzle-loading naval gun. To represent my guns I selected two different diameter tubes of plastic that would slide neatly inside each other and glued them together.

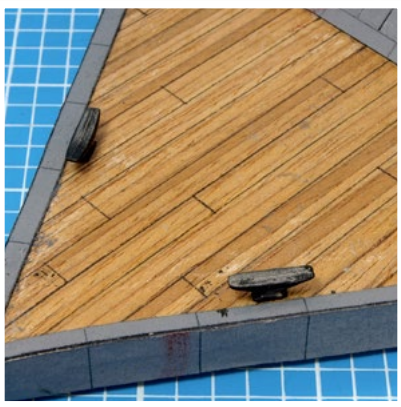
The 'guns' were sprayed matt black and then slid through the gun port apertures. My method was to generously spread 'No More Nails' at the rear end and then push the 'gun' into position against the inner supporting 'box'. Alternately you could make a ball of Miliput instead, but it's a lot more expensive than 'No More Nails'.

The insides of the gun barrels, where the spray failed to penetrate, need to be touched up. The gun ports were closed off when not in use, so I created some panels, and added a central reinforcing piece to make them look less bland.



To add more interest to the deck, I added some plastic cleats, which I painted prior to gluing them in position.

The original CSS *Atlanta* had two ladders either side of the fore and aft gunport, but there is not enough room on this 'adjusted' model to include one to the left of the gunport otherwise the panels over the gunports won't be able to open properly.



Ladders can be quite fiddly to build, but fortunately, are relatively cheap to buy, I bought some suitable examples from Cornwall Model Boats; http://www.cornwallmodelboats.co.uk, for £0.25 each, but there are many other stockists of model boat fittings from which to choose, so as ever, shop around. With relatively cheap items, the postage often forms a significant percentage of the overall cost, so I think it's always worth buying a few extra items to put into 'stock'.

I trimmed the ladders to size, sprayed them matt black and lightly drybrushed them with grey, and glued them into position.

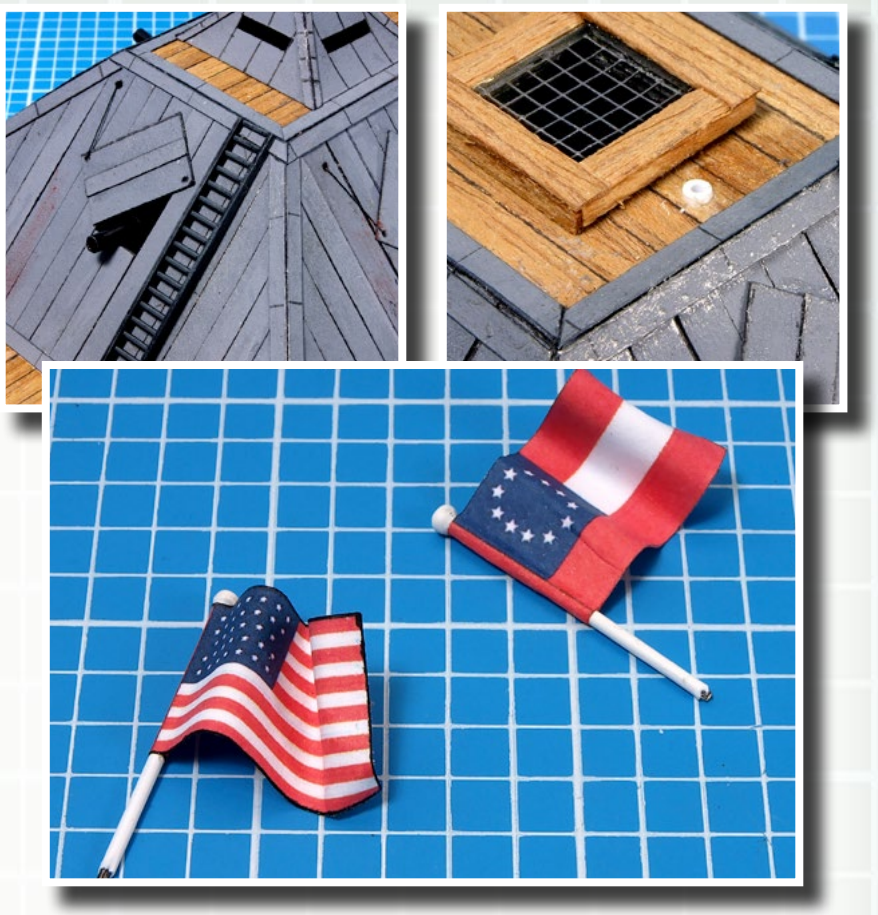
Finally, to proclaim your model's allegiance you need to add a suitably adorned main ensign staff. I wanted to be able to change the ensigns for my model, so having decided on the height and diameter for the staff itself, I found a length of plastic tube with an internal diameter slightly larger than the staff, and drilled a hole through the rear of the upper deck, to the external diameter of this larger tube, and cut the outer tube so that it protruded slightly above the deck level and then glued it in place.

There are many examples of American Civil War flags on the internet. I created generic flags as shown below, and scaled them to suit the model, remembering to allow an area that wraps around the ensign staff.

Cut two flag pole staffs to length. Glue a small bead or similar item to the top of each staff, and paint the exposed end of the staff if necessary. Finally glue each flag to a staff.

For a basic generic model this is probably as far as you need to go, and so now we can see our Confederate ironclad, in a sheltered bay waiting for action.

You can always add extra detail; ropes, boxes, even handrails etc. For example, the CSS *Atlanta* featured a spar torpedo on the bows, but in a model intended for wargaming-type handling, it would be relatively fragile so I have omitted it. However, if you want to incorporate a spar torpedo, there is plenty of reference material on the internet. From a modelmaking aspect the spar torpedo assembly consists of a bent length of wire slotted into a short length of tube to represent the 'charge', and then hinged at the bows.



REFERENCES

Fortunately for the modelmaker interested in the naval vessels associated with the American Civil War, there is a lot of reference material readily available.

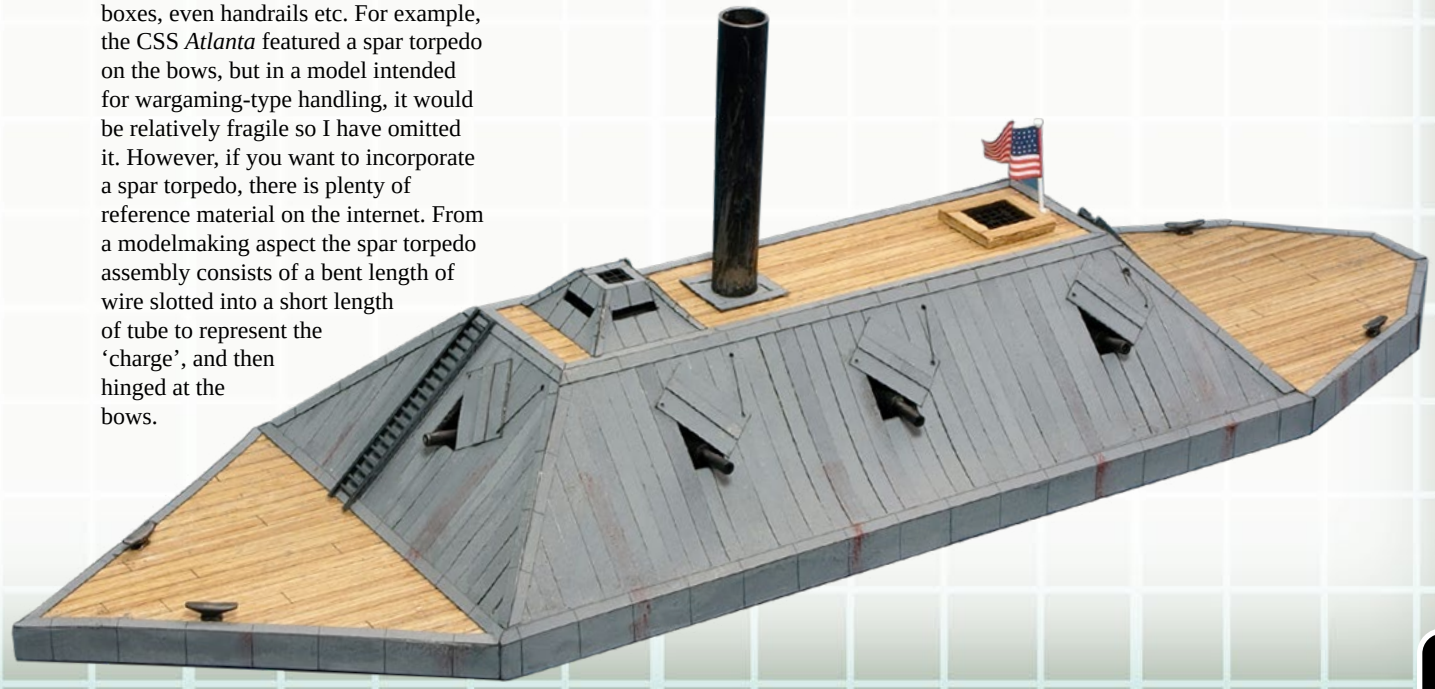
For specific information regarding the proportions of CSS *Atlanta* consult the US National Archives which holds a general plan, (plan # 81-12-20 in Record Group 19), which was made at the Philadelphia Navy Yard, Pennsylvania, after the Civil War had ended.

But for more general information, take a look at the Osprey Publications range, including:

Konstam, Angus, *Confederate Ironclad 1861-65* (New Vanguard 41), Osprey Publishing.

For an overview of the naval aspects of the American Civil War, I would recommend: *Strangling the Confederacy: Coastal Operations in the American Civil War* by Kevin Dougherty.

And of course the internet is an excellent resource, but be aware that the more sources you consult in the search for definitive information, the more likely it is that you will probably find contradictory information instead.



HOW TO MAKE...
RUINED 15MM WW2 BUILDINGS

Paul Davies creates some ruined buildings that could be used throughout Europe with the emphasis on ones that would suit Southern France, Spain, Portugal, Italy or Greece, and by keeping them generic cover from the Ancient period through to the Twentieth Century.

Unless making a damaged building consisting of little more that a low wall, my approach is always to create the building and then 'damage' it. To get you started I include plans and instructions for making a simple generic European building. Then, by showing close-ups of a selection of completed buildings, I'll demonstrate different approaches to 'ruining' them.

In the course of writing this article a number of different techniques have been used; not all of them on the same building, so different buildings in different stages of completion have been used to illustrate the techniques.

When planning the construction of buildings, the first consideration is whether to place figures inside, or use some other way of indicating where troops are deployed. My preference is to have non-removable roofs and use numbered 'rubble' markers to identify buildings.

It's very easy to make removable roofs, but bear in mind that battle damaged ones seldom have the structural integrity to be repeatedly handled and removed.

My ruined buildings are based on pieces of vinyl floor tile and by allowing for an overlap all round, it's easy to add rubble. After all, the buildings have been shelled, bombed or whatever, so there needs to be some evidence of that, otherwise it looks as if someone has gone round the town with a 'dustpan and brush' prior to troops arriving.

For maximum flexibility, don't add items like jerry cans, tank tracks or bicycles that would look somewhat out of place in a 'Napoleonic' town; even more so in Ancient Greece!

SCALING

Even if you don't intend to place figures inside, it's important that your buildings look, as if they could hold figures.

And with a degree of compromise you might be able to get your buildings to suit 'adjacent scales'. For example, a building intended for use with 15mm figures, if made slightly smaller could work with 10mm figures, albeit a bit larger than ideal, and if you make that same building slightly larger than ideal for 15mm, then it could be usable with 20mm figures. Just a thought.

MATERIALS

For this project I used cork tiles for the basic building structure; they have an interesting texture, are easy to glue, and when you 'break' the edges they look a bit like damaged masonry.

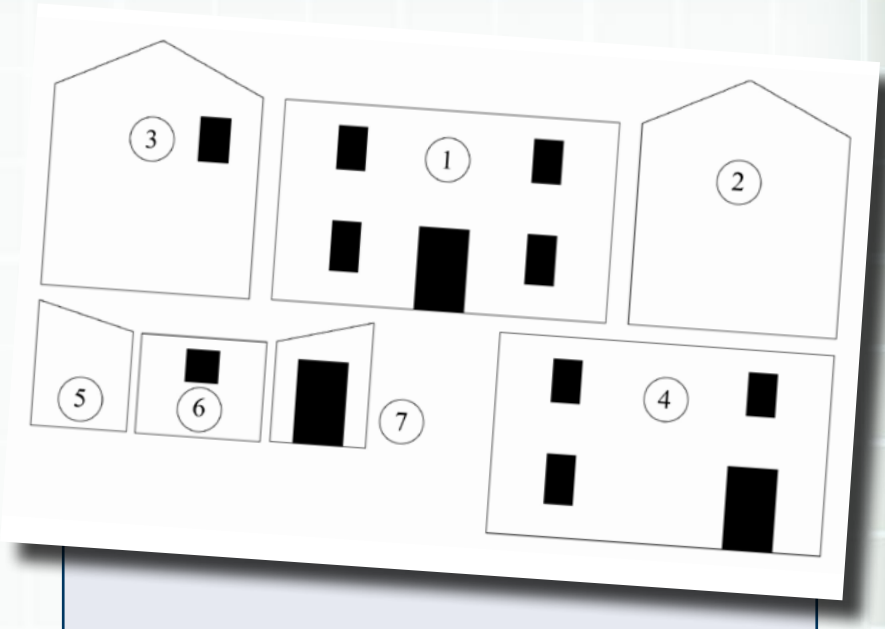
The roofs of buildings in Southern Europe featured clay tiles known as 'Mediterranean' tiles.

To represent these tiles I use 'ribbed' textured card available from good art shops or on-line.

I believe that the best way to simulate the look of wood is to use wood, and I use balsa from The Balsa Cabin: www.balsacabin.co.uk

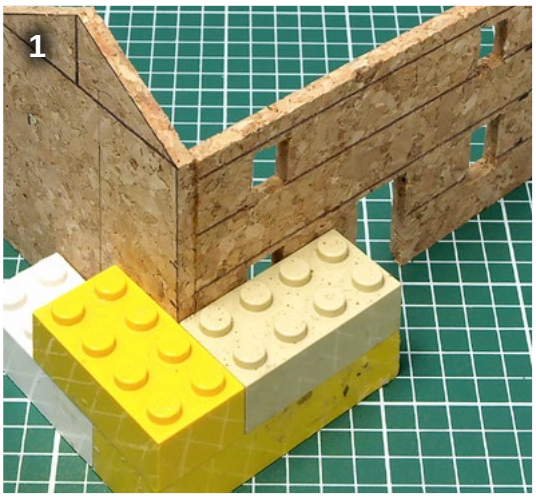
Finally, as already mentioned, I use vinyl floor tiles for my building bases.

THE PLANS



Useful tip: Cutting out windows and doors using a steel rule and a scalpel can be time-consuming. My approach was to design my windows and doors to match the blade width of my wood chisels. It's a very simple matter to mark out the window and then just four 'pushes' will neatly create the aperture. Experiment first and remember that chisels are, or should be, sharp.

THE BUILD

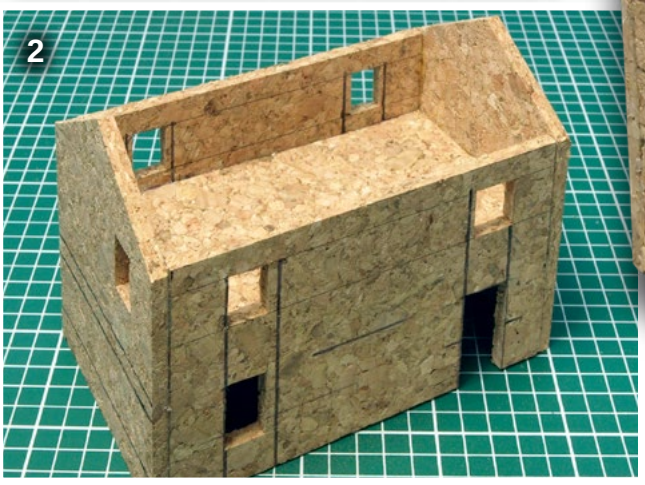


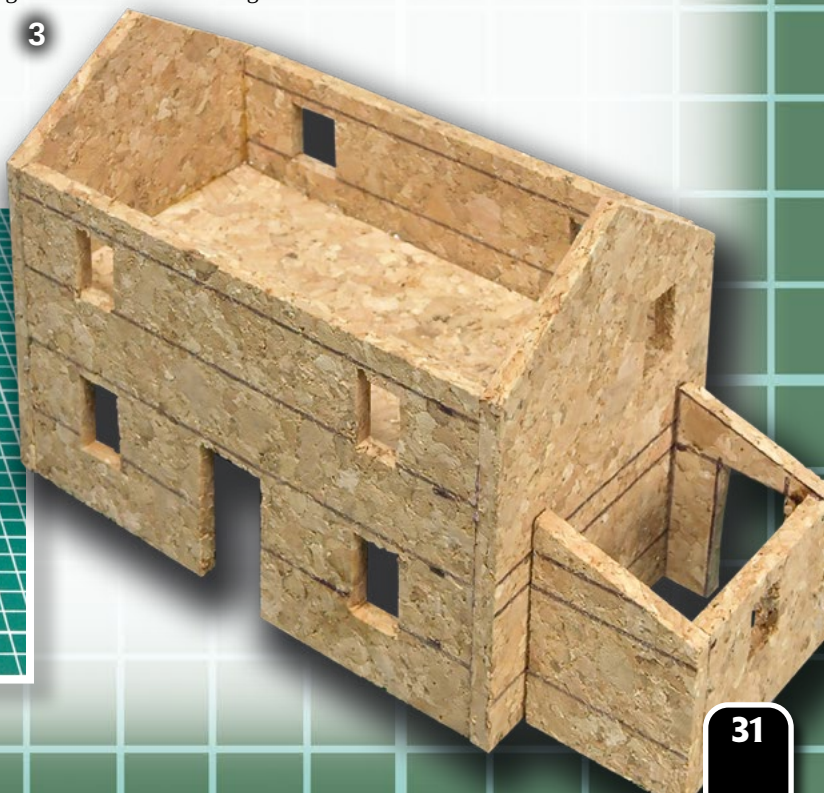
1. After cutting pieces from cork tile, having used the numbered pieces from the plans as templates, I glue together the front (1) and one end wall (2).

Useful tip: Use Lego® bricks to ensure an accurate right angle.

2. Glue the other end wall in place (3). I added an inner floor to help keep the building 'square', and make it more rigid. Cut a piece of cork to fit and then glue wall (4) in place.

3. I decided this building would have a 'lean-to' building at one end made from three pieces of cork tile (5), (6) and (7) that are glued together and then glued to the main building.

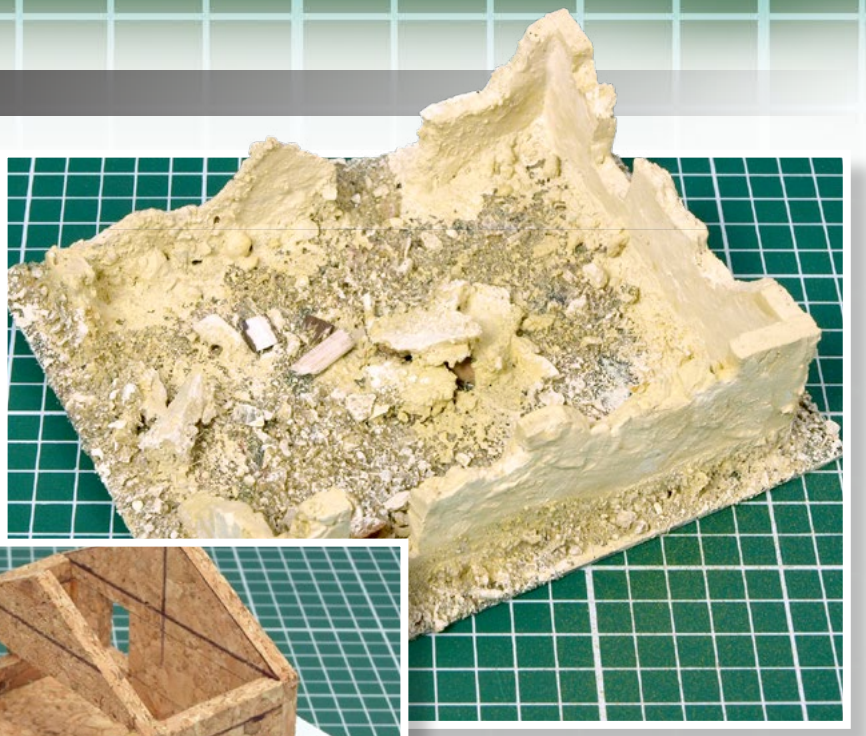


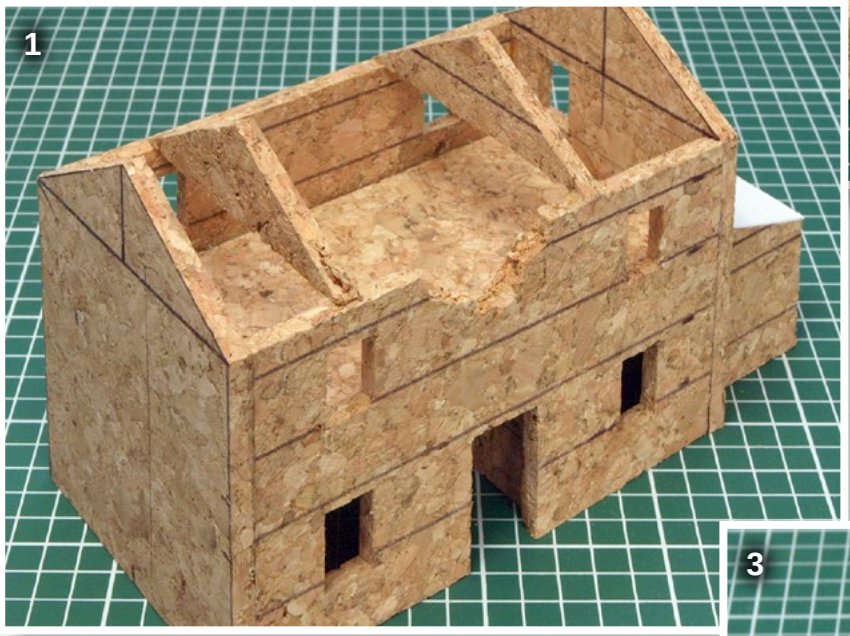


ADDING DAMAGE

To what degree you 'damage' your buildings is up to you. It may have been hit by a piece of stray shrapnel and lost some tiles or it could have been all but destroyed and left as a pile of rubble.

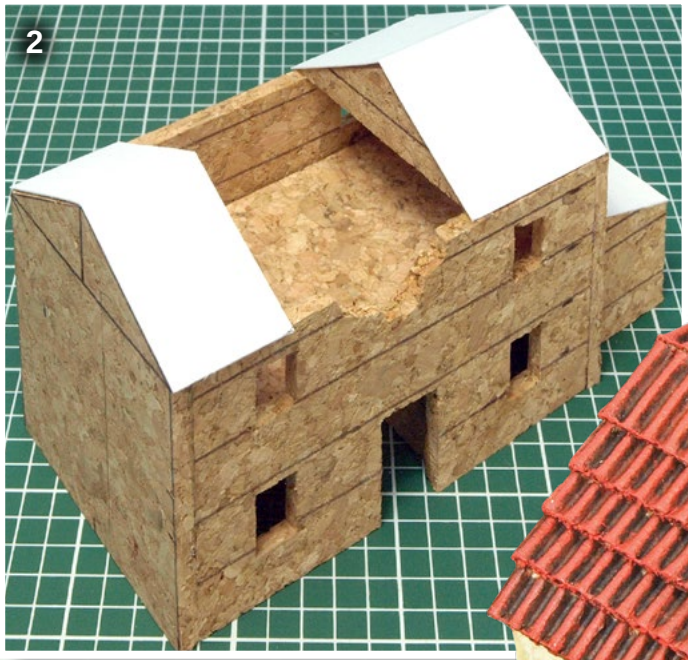
1. This building was hit by a plunging shell which punched a hole in the roof, so cut two pieces of cork to support the main roof and break off a piece of the wall to simulate slight damage. Add a piece of thin card to provide a supporting roof for the lean-to.

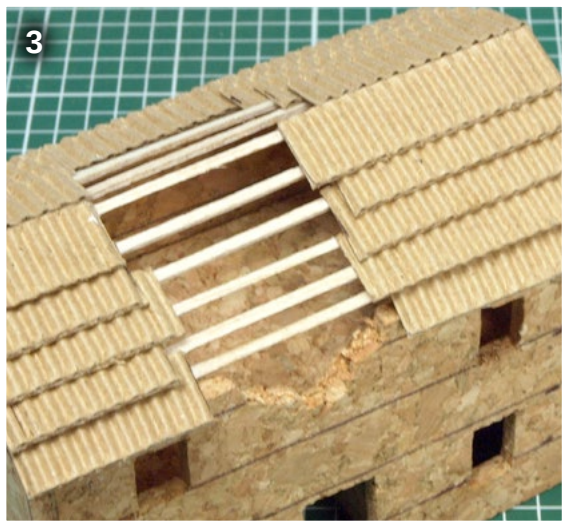


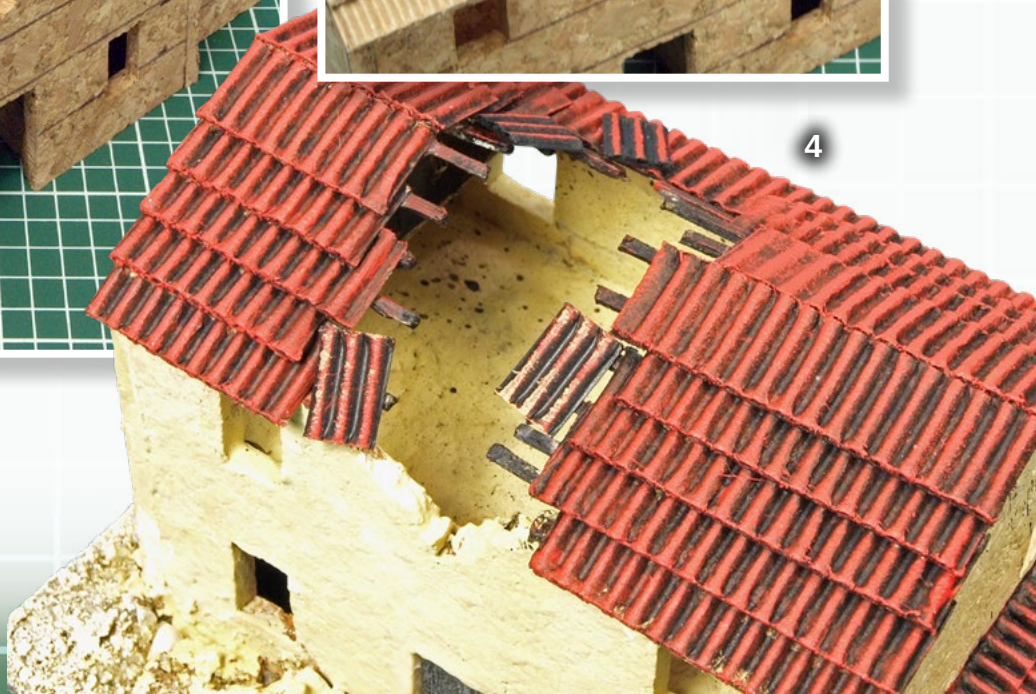


2. Glue two pieces of folded white card in place to support the tiles of the main roof, leaving a big enough gap for the hole cause by the artillery shell or whatever.

3. Cut thin strips of balsa to represent the rafters. Glue them to the underside of the card roof. Cut strips of ribbed card and glue them, overlapping, onto the main and lean-to roofs.





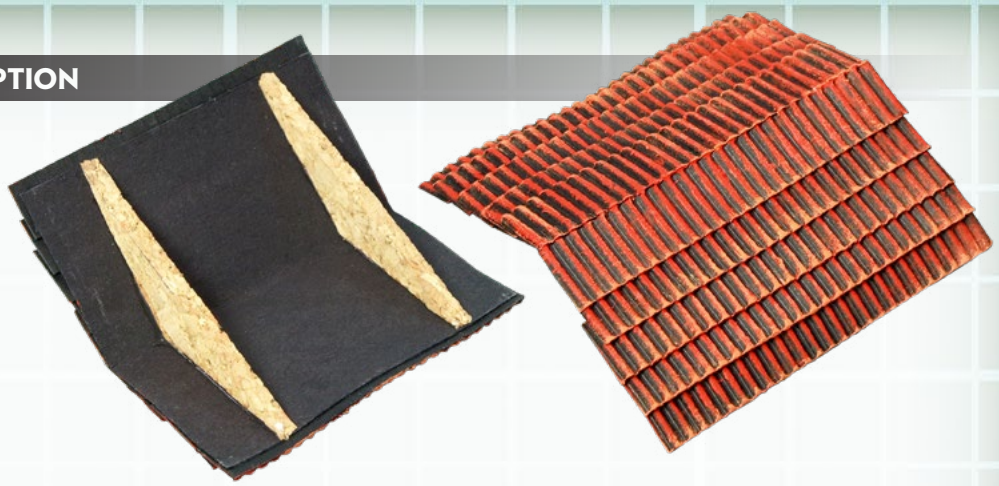


4. Carefully break the rafters and add individual tiles as shown in this photo of the completed building.

REMOVABLE ROOF OPTION

When making a removable roof cut two suitably profiled triangles and then glue them to a card supporting roof.

The roof can then be 'tiled' in the same way as a 'fixed' roof.



FINAL DETAILS AND OTHER DAMAGE EFFECTS

To hide the edges of the cork tile, I either use pieces of thin card to simulate quoins, or coat the corners, or the entire building, with filler.

Doors can be added using balsa sheet cut to size, painted, and glued into position; open, closed or ajar.

Shutters made from card and suitably drybrushed can be added, but as the project for which my buildings were constructed required all of the buildings to have suffered extensive damage I've not included any on these buildings.

OTHER DAMAGE EFFECTS

If an artillery shell has plunged through the roof, then it may well have passed directly through the upper floors on its way. My approach is to cut away the floor as required and glue thin strips of balsa on top of it and overhanging, to represent damaged floor boards.

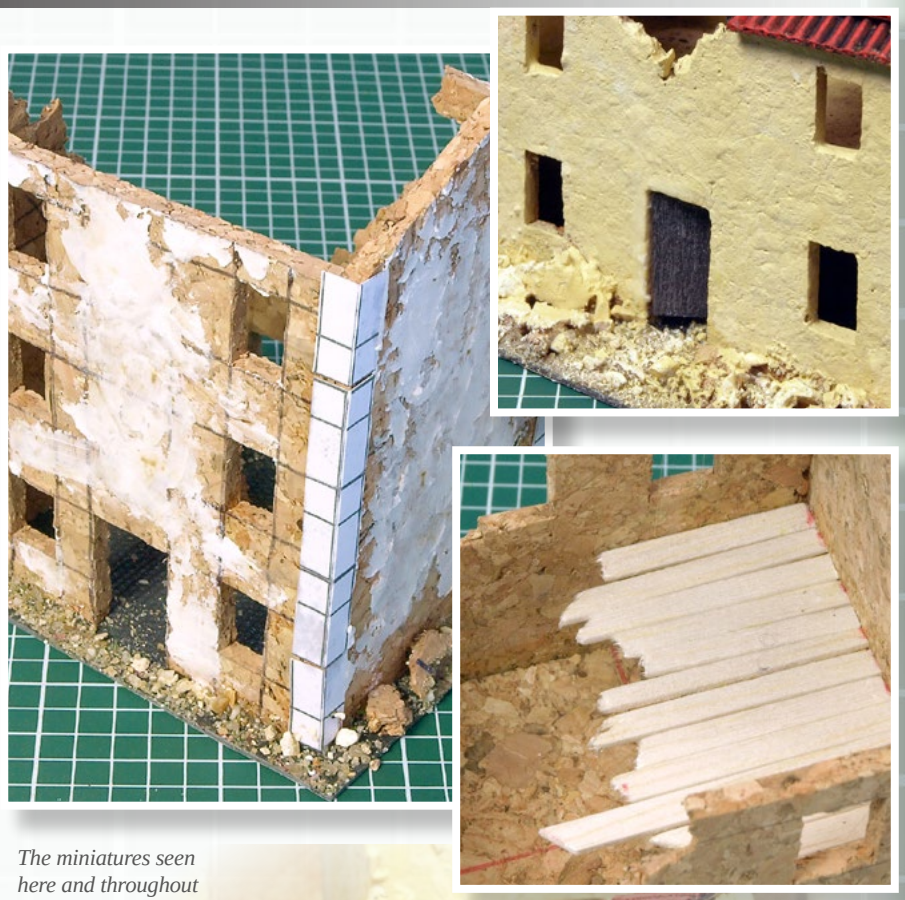
Useful tip: at the exposed broken ends, break the floor boards, don't cut them.

For rubble I use sharp sand. It's cheap and has a mix of sand and fine gravel. Depending how you buy it, you may need to spread some sand out on a flat surface to dry it thoroughly before use. I also add small pieces of broken cork tile.

PAINTING

I have deliberately kept the painting simple and used Dulux Matchpots. My base colour for the buildings and rubble was Golden Umber 3 which was then mixed with Californian Sands 6 for a drybrush. I finished off with a drybrush of 'neat' Californian Sands. The roofs were undercoated with Volcanic Splash 4 and then drybrushed with 50/50 Volcanic Splash and Californian Sand.

Once you're happy with the technique it's very easy to make more, (and more) buildings; in fact it's easy to get carried away… I made more than twenty before I started to ask myself just how large a playing area I was intending to use!



The miniatures seen here and throughout this article are by Battlefront, from their Flames Of War range.

HOW TO MAKE AN...

ACW COVERED BRIDGE

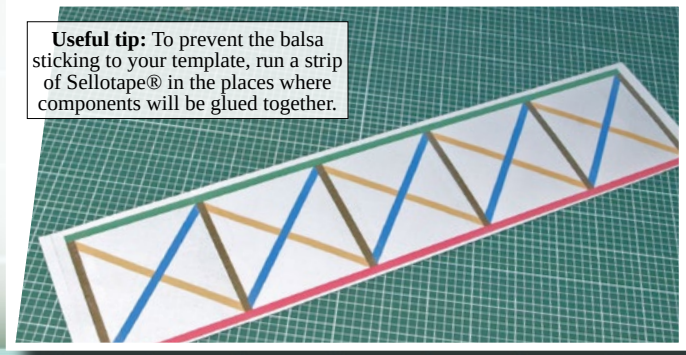
Our 'How To' master Paul Davies shows us how to make an iconic covered bridge for use in Revolutionary, Civil War or Wild West battles.

A covered bridge makes a useful addition to any ACW battlefield. A search on the Internet will show that there were several basic designs; some with solid sides, others with partially open sides presumably to let in the light? I decided to make one of the latter versions because, as it would reveal some of the inner framing it would be visually more interesting.

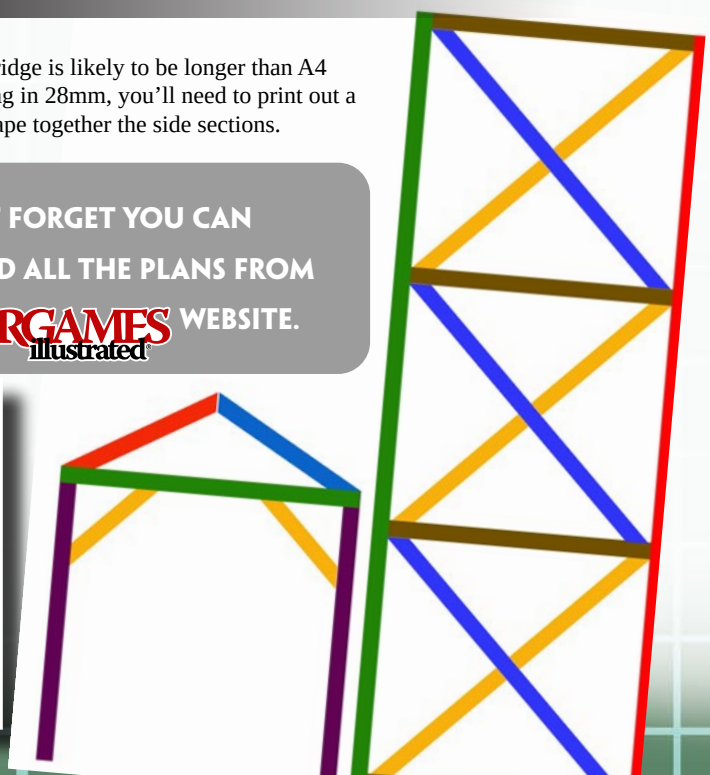
THE PLANS

Assuming that your bridge is likely to be longer than A4 paper if you're working in 28mm, you'll need to print out a couple of sheets and tape together the side sections.

DON'T FORGET YOU CAN DOWNLOAD ALL THE PLANS FROM THE WARGAMES illustrated WEBSITE.



Useful tip: To prevent the balsa sticking to your template, run a strip of Sellotape® in the places where components will be glued together.



CONSTRUCTING THE FRAMEWORK

The Side Frames

1. Cut lengths of balsa for the long horizontals and the verticals. Place the horizontals and two outer verticals onto the template and then pin and glue them together.

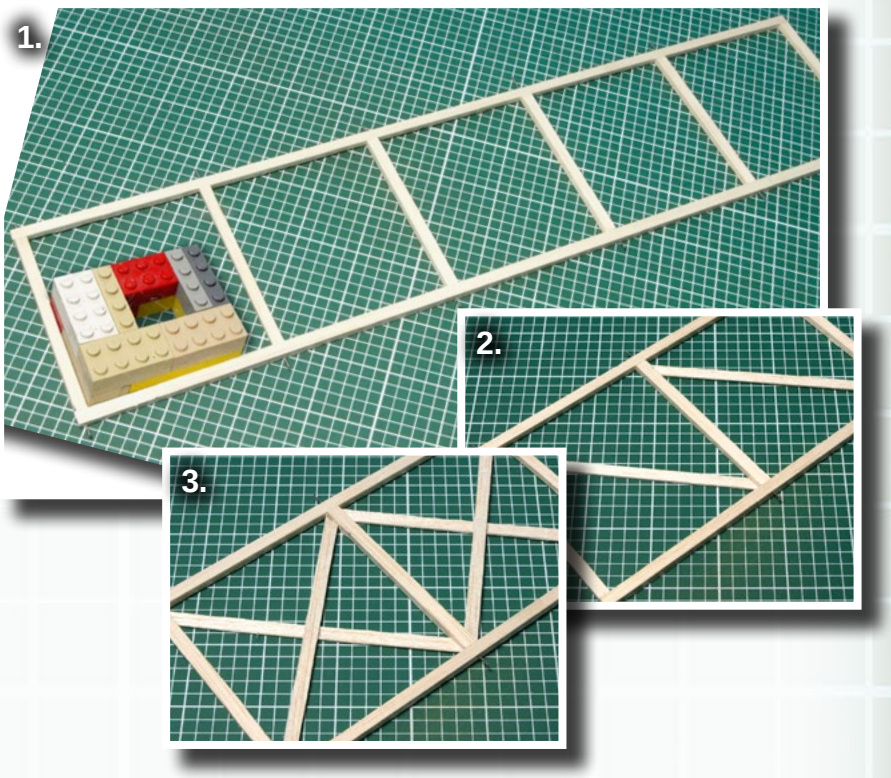
I use Lego® bricks to ensure a right angle.

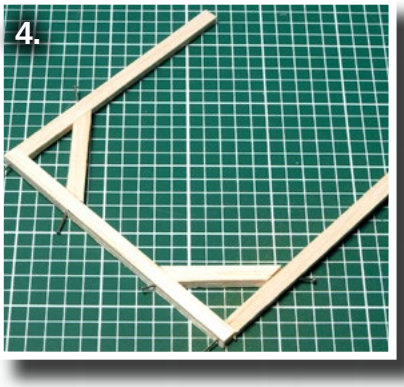
Pin and glue the verticals in place.

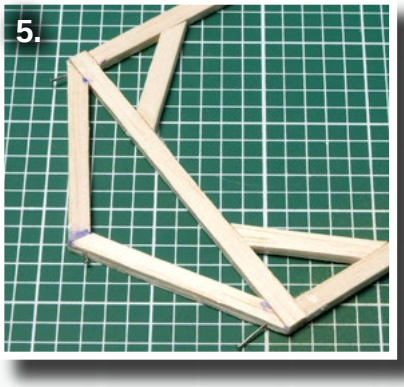
2. Next step is to add the diagonal bracing pieces. Note these must be no thicker than half the thickness of the outer frames so that two bracing pieces can overlap.

3. Once the side assemblies are dry, you can carefully withdraw the pins, but I prefer to snip off the heads and carefully push the pins right in, which helps to keep everything 'square' and also strengthens the joins.

Repeat these steps to make the other side.





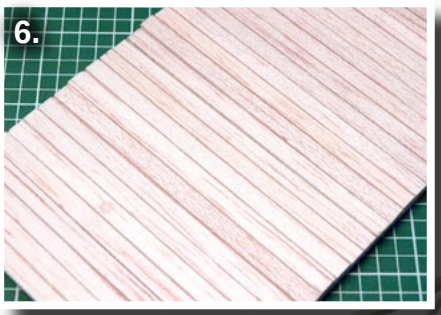


The End Frames

4. Construct the two end frames. Like the gable ends of a house, these end pieces 'enclose' the side walls. Cut strips of balsa. Lay them over the template then pin and glue the verticals, horizontals and bracing pieces together.

5. Using the template as your guide, cut the two pieces to create the gable end. Repeat this again for the opposite end.

MAKING THE FLOOR AND ASSEMBLING THE FRAMEWORK



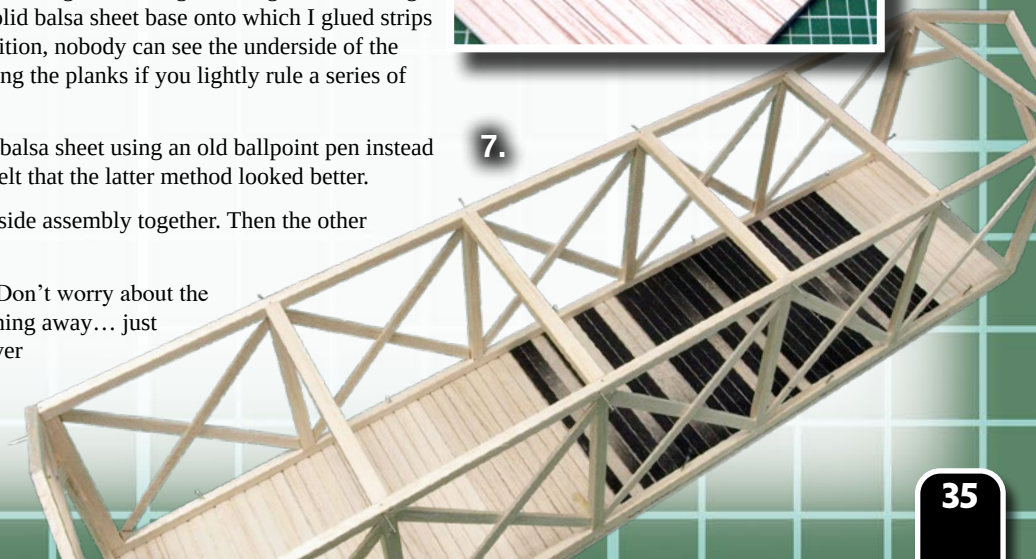
6. Next stage is creating the 'floor' of the bridge which has to be the length of a side frame PLUS the thickness of the two end panels. Authentic construction would consist of a frame featuring two longitudinal beams joined by cross pieces similar to the basic bridge sides, onto which would be glued individual planks. However I wanted the bridge to be as sturdy as possible given the regular wargames handling that it would receive, so I went for a solid balsa sheet base onto which I glued strips of thin balsa. Once the bridge is in position, nobody can see the underside of the bridge anyway. It helps when positioning the planks if you lightly rule a series of guidelines too.

You could just 'engrave' lines into the balsa sheet using an old ballpoint pen instead of laying individual planks, but I just felt that the latter method looked better.

7. Pin and glue one end piece and one side assembly together. Then the other side and end to the first assembly.

Glue the assembly to the bridge floor. Don't worry about the black balsa planks. I never throw anything away… just ask my wife. These planks were left over from another project.

Then add some crossbeams.

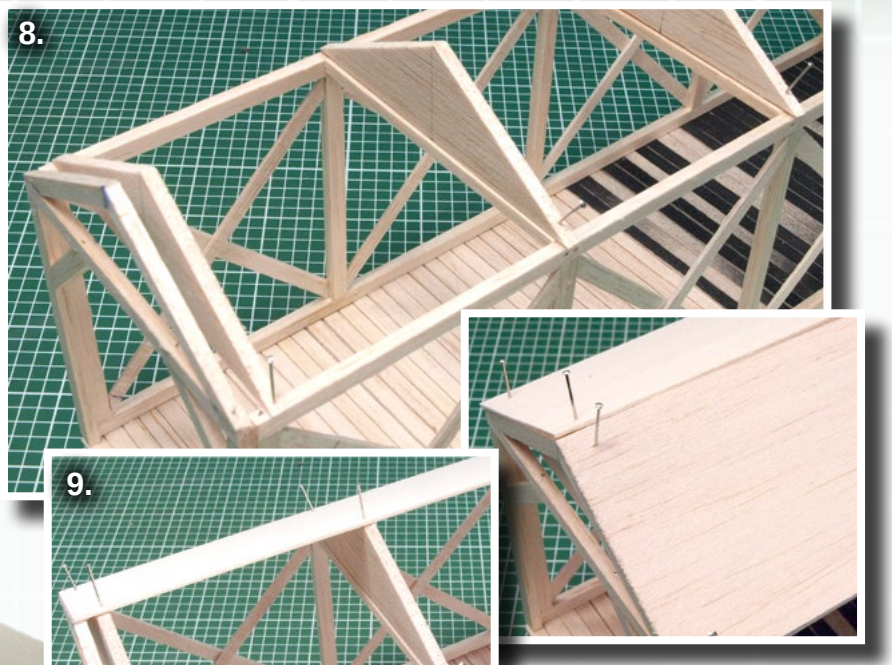


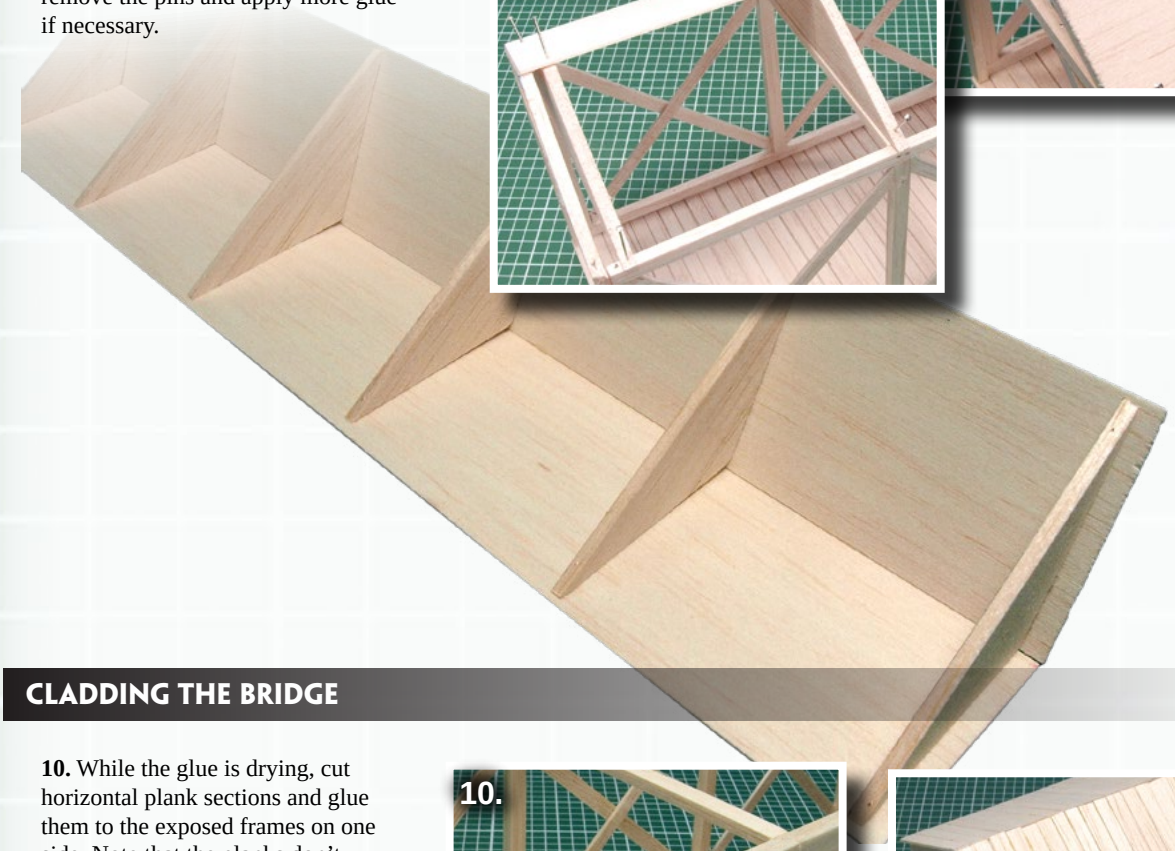
MAKING THE ROOF

8. The roof needs to be removable to allow access to all of the bridge interior so you need to make a series of triangular roof supports. Carefully pin the supports to the frame on one side.

9. Cut an under roof from sheet balsa. Pin and glue it to the 'unpinned' side. Pin and glue the opposite under roof to the roof supports.

Leave the model overnight to ensure that the under roof is securely glued to its supports, then very carefully remove the pins and apply more glue if necessary.





CLADDING THE BRIDGE

10. While the glue is drying, cut horizontal plank sections and glue them to the exposed frames on one side. Note that the planks don't completely cover the sides because as with the full-sized bridge you need to leave a gap to let light in.

Clad the other side of the bridge. Put the assembly aside, cut some more balsa strips and clad the outside of the under roof.

Position the roof on the bridge and trim the plank ends if necessary.

11. Cut a strip of card and score along the centreline. Cut short lengths of card, fold along the scored line and glue to the roof to create a ridge which neatly hides any 'iffy' joins and finishes off the roof.

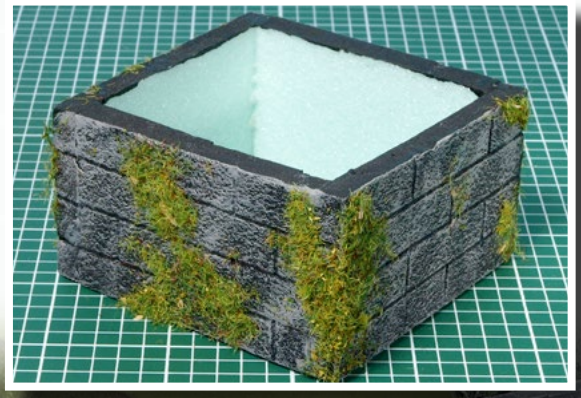
THE FINISHING TOUCHES

12. The end pieces need vertical panels added which are cut from sheet balsa and glued in place.

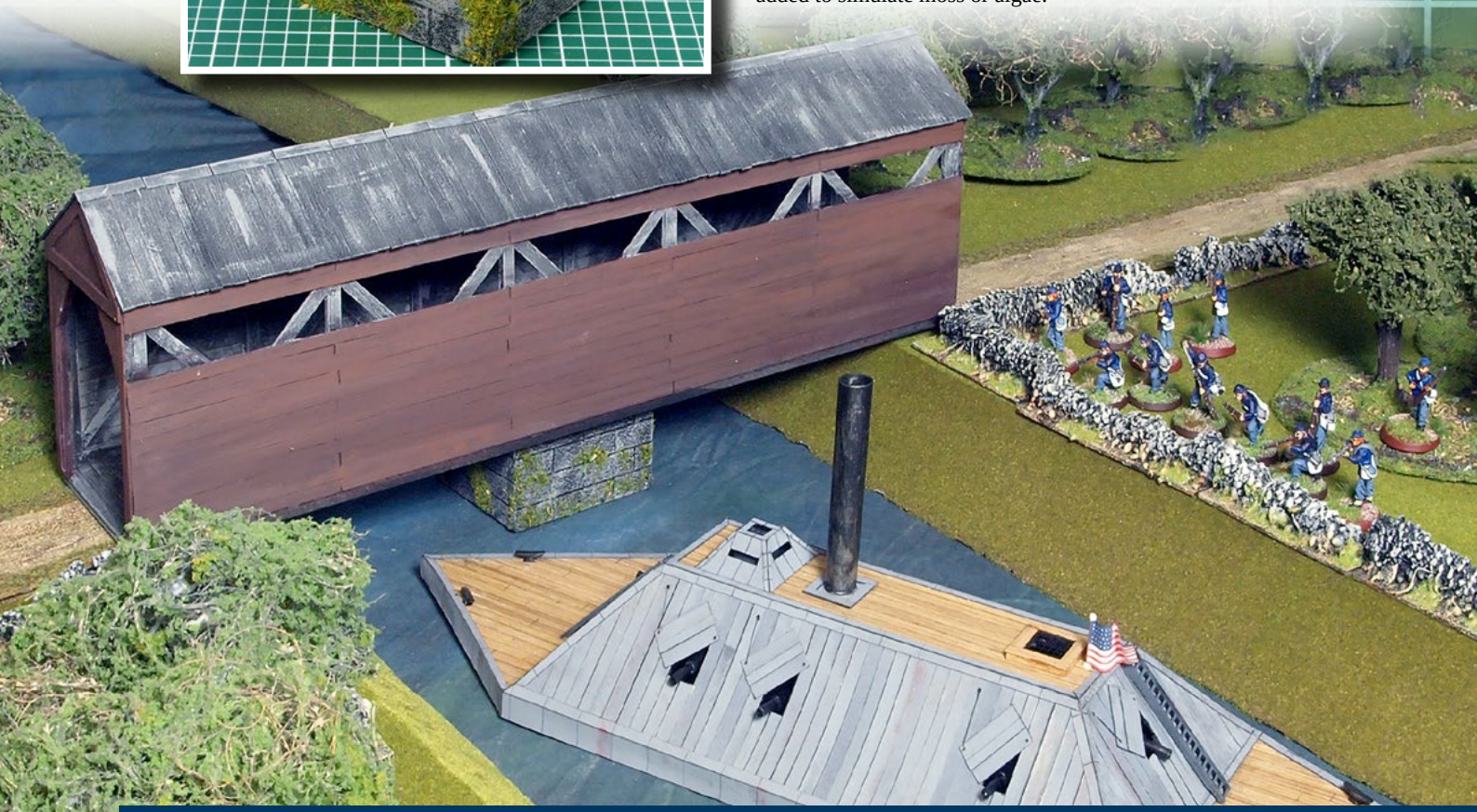
To finish of the end piece add a horizontal beam and two angled pieces.

Position the roof to ensure that it's a good fit.

At this stage you can progress to painting your model, and you have plenty of choice; white, grey, brown, black… even red; it's highly unlikely that there is a wrong colour. My decision was to undercoat it black, drybrush the roof and inside pale grey, and then paint the outside dark brown.



Another step? When creating buildings etc., for wargaming purposes there is always a degree of compromise as frequently a truly scale model would be too fragile to survive regular handling. For example, if this bridge is particularly long then it could have a series of supporting frames, but I seriously doubt that they'd last very long with typical wargame handling. One option could be to construct a 'stone' supporting buttress that could be positioned in the centre of the river. It's easy to make one by making a styrofoam® box. The outer surface can be given a stone finish simply be etching the stonework into the foam using an old ballpoint pen. The foam can be painted in grey or a suitable colour to match what would have been the local stone, drybrushed to bring out the texture and some flock added to simulate moss or algae.

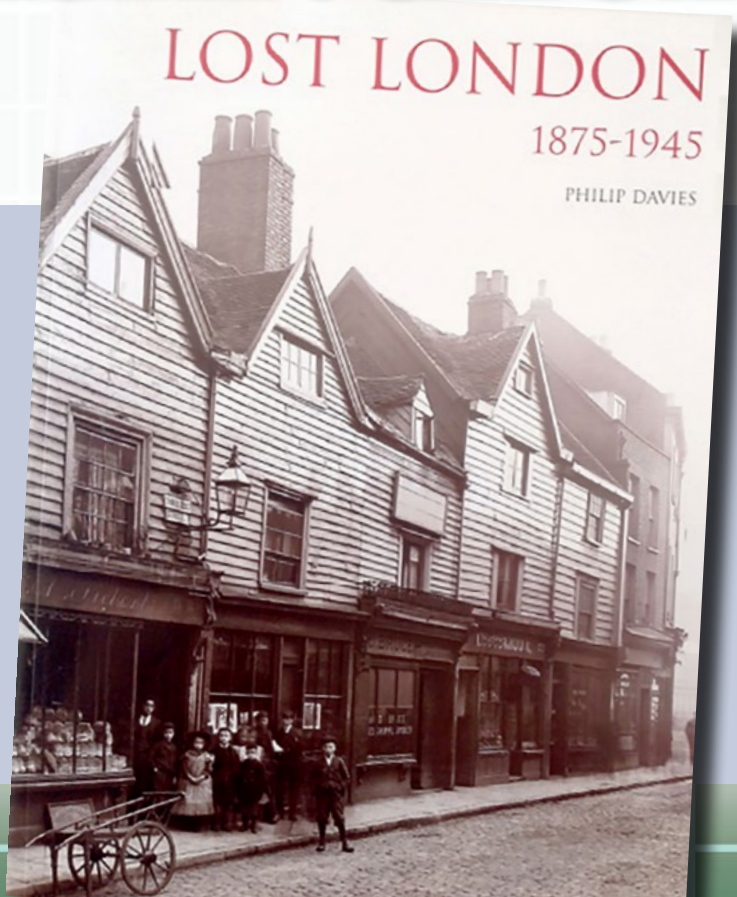


As with most of my 'How to…' articles, this one should be seen as a starting point… you can easily change the proportions or size of your bridge, to suit your particular wargames table. Who knows maybe you can even size it to allow an operating locomotive and carriages or wagons to pass through; shades of *The Great Locomotive Chase?* Take a look at Osprey Raid 005; *The Great Locomotive Chase* or *Andrews' Raid*, for masses of inspiration.

Finally a 'thank you' to fellow Minehead Wargames Club friend, Mark Densham for the loan of figures and the magnificent Bachman HO3n train.

HOW TO... MAKE A VICTORIAN SHOP

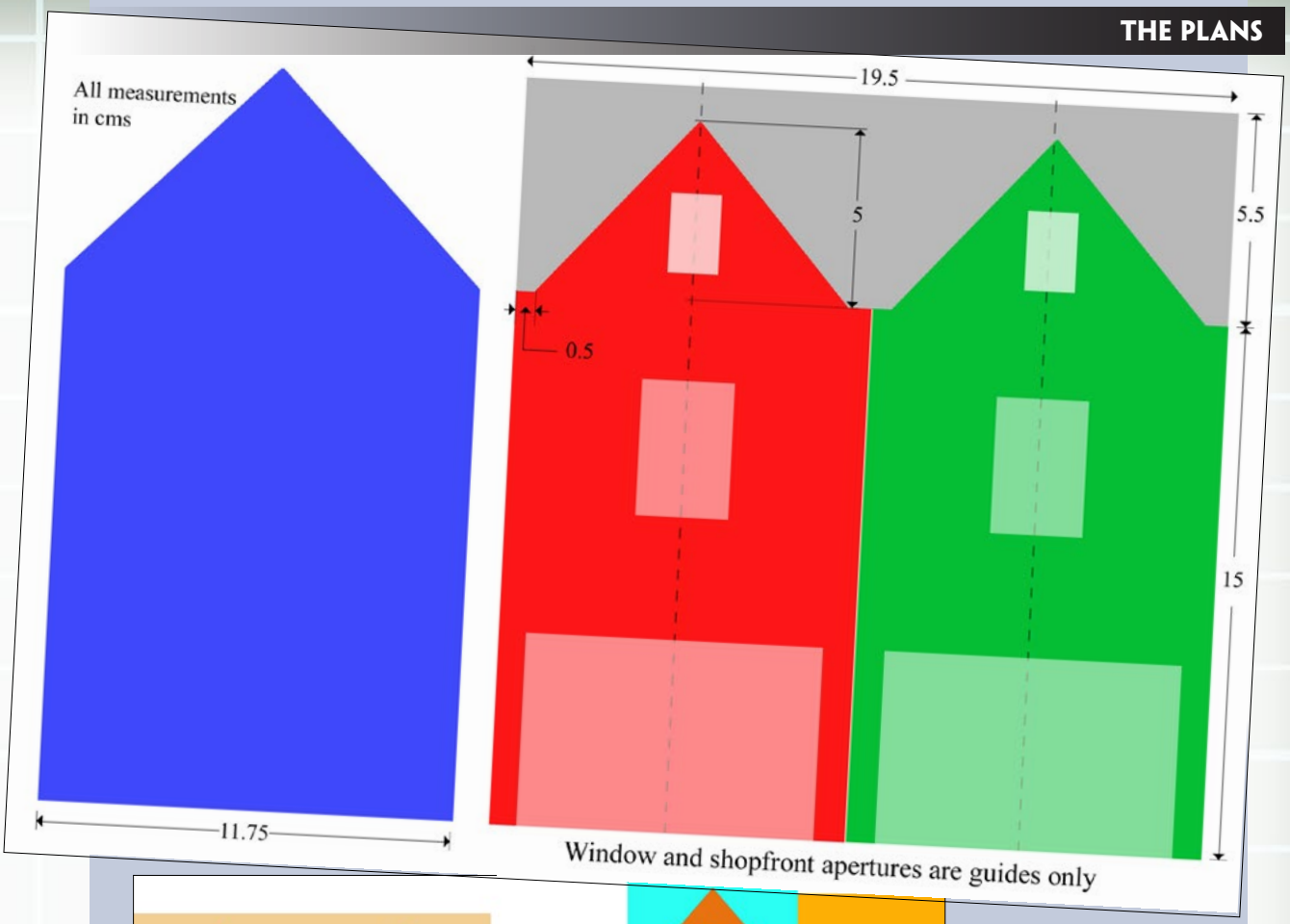
Paul Davies provides us with a *How to* for some very useful buildings for Victorian skirmishing.

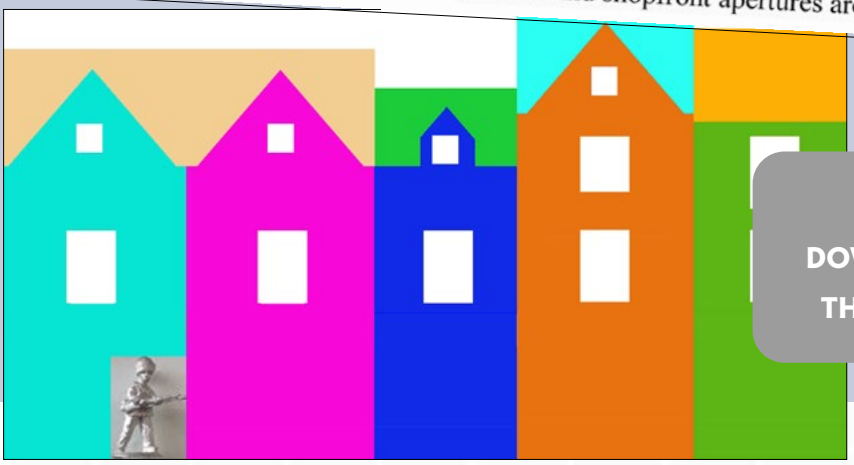


The inspiration for this month's 'How to…' is the cover photograph from the excellent book, *Lost London 1875-1945*. (The two shops on the left). For anyone with an interest in the lost buildings and streets of London this book, published by English Heritage, contains more than 500 photographs from the former London County Council's photographic archive.

From this I made a schematic of the buildings, focusing on the left. The drawing then needed to be scaled to match the figures. The positions and sizes of the windows are approximate. The doors aren't shown because the shop fronts (including the doors) are built as separate components and an aperture is cut to fit them.

THE PLANS





DON'T FORGET YOU CAN DOWNLOAD ALL THE PLANS FROM THE WARGAMES illustrated WEBSITE.

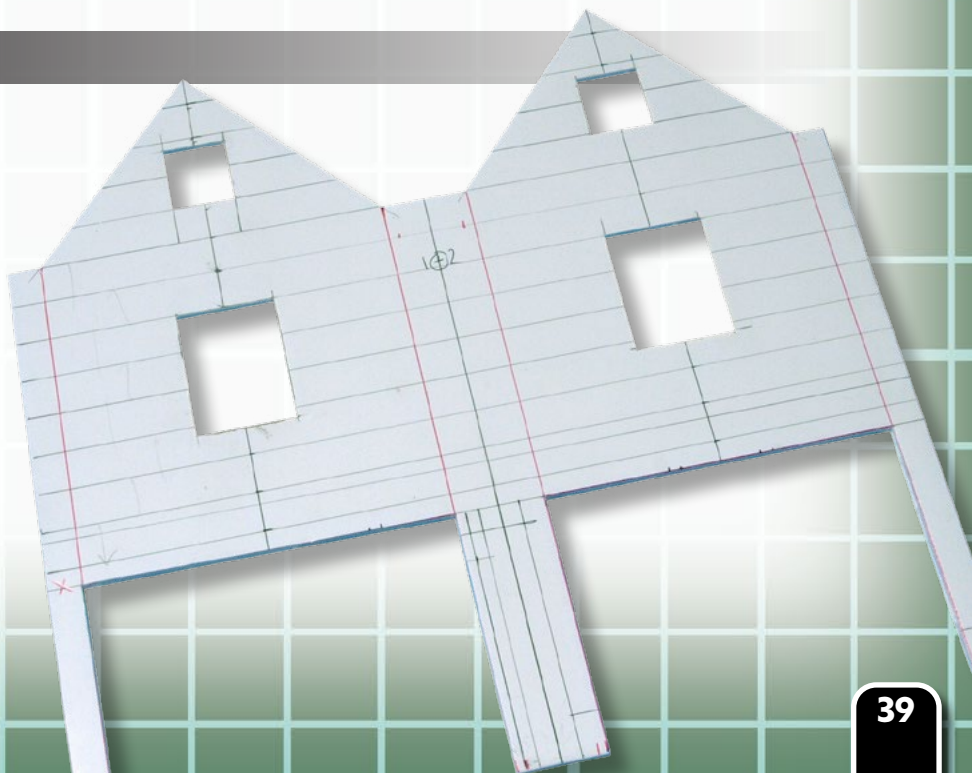
CONSTRUCTING THE MODEL

The dimensions were transferred to 3mm foamboard and horizontal lines ruled to help when positioning the horizontal 'timbers'.

This project needed two types of windows: small non-opening loft windows and sash windows. The first was simply a balsa frame with a single upright recessed back into it.

Sash windows consist of an outer frame with two half-sash windows that would slide in front or behind each other.

Window and shop front apertures are not cut out at this stage because I make holes to match windows, not windows to match holes!.



WINDOWS

Using Lego® bricks make a jig. Cut strips of balsa for the verticals pushing them fully down into the jig. Cut the horizontals, and glue them in place.

It's easier to glue the frame together from the underside. I used cheap 'superglue'.

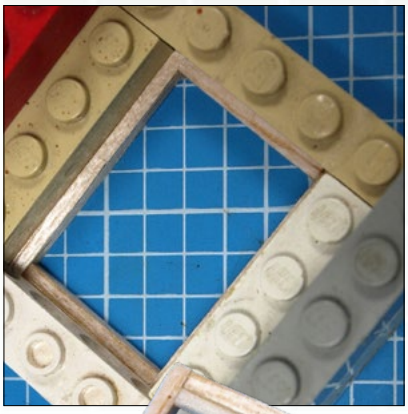
Remove the frame from the jig. Mark the halfway points on the verticals. For the lower sash window which must be flush with the back of the main frame, cut two horizontals to fit inside the frame and glue them in position.

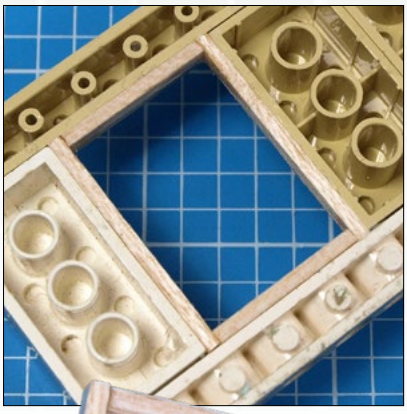
Cut the verticals and central upright and glue together.

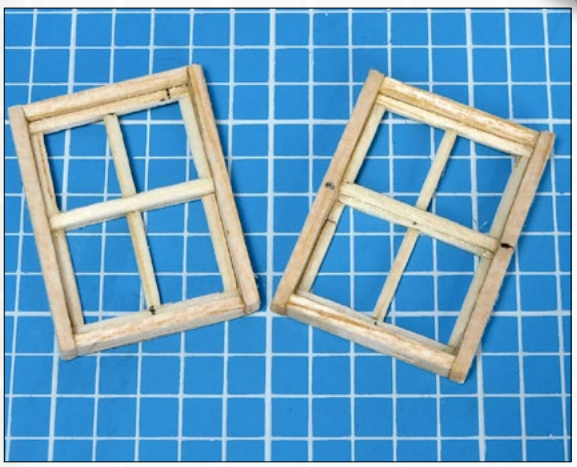
The lower horizontal of the upper sash lies on top of the upper horizontal of the lower sash but very slightly higher.

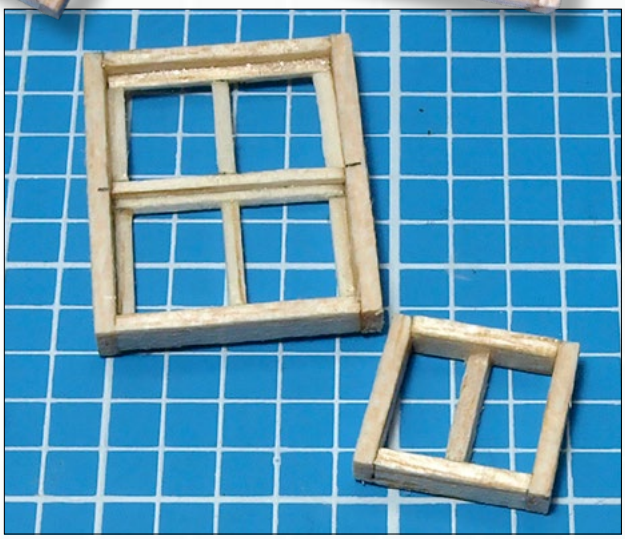
Make the upper sash by adding the top horizontal followed by the verticals. It's a good idea to make more than you need in case one gets damaged.

I'll deal with the shop front windows later.









THE DOORS

The simplest door is one without windows. Cut out the basic shape from balsa and using an old ballpoint pen score vertical lines to simulate planks. For doors with a window, cut the door to size, with the grain running vertically, then cut out the aperture. Make the horizontal cuts first followed by the verticals. Using strips of balsa the same width as the door thickness, line the aperture; verticals first then the horizontals. The doors could have a single pane or more than one. Just follow the same principles outlined for making the windows, namely create an inner frame and then the dividing frames.

THE WALLS AND FLOORS

Having made the windows, cut suitable apertures and test fit them. I also cut out the shop frontage apertures.

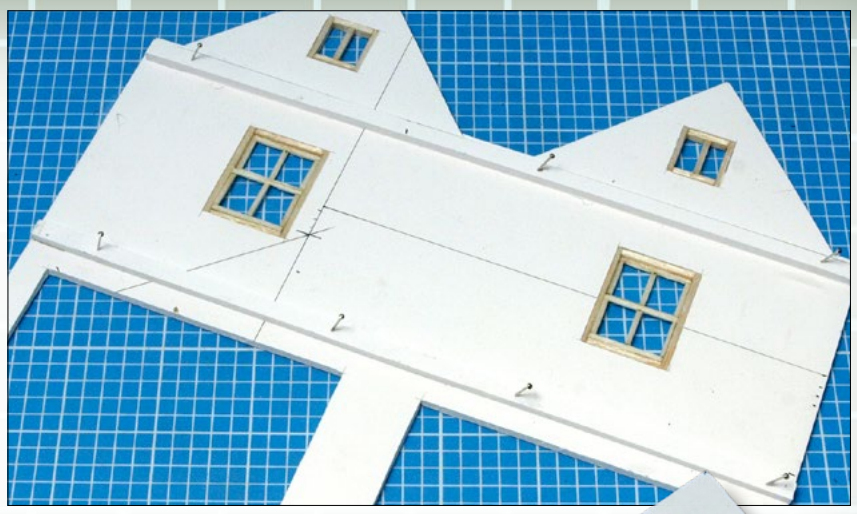
Add foamboard floor supports.

The supports on the sidewalls don't run full length; this will allow the front and rear walls to fit in.

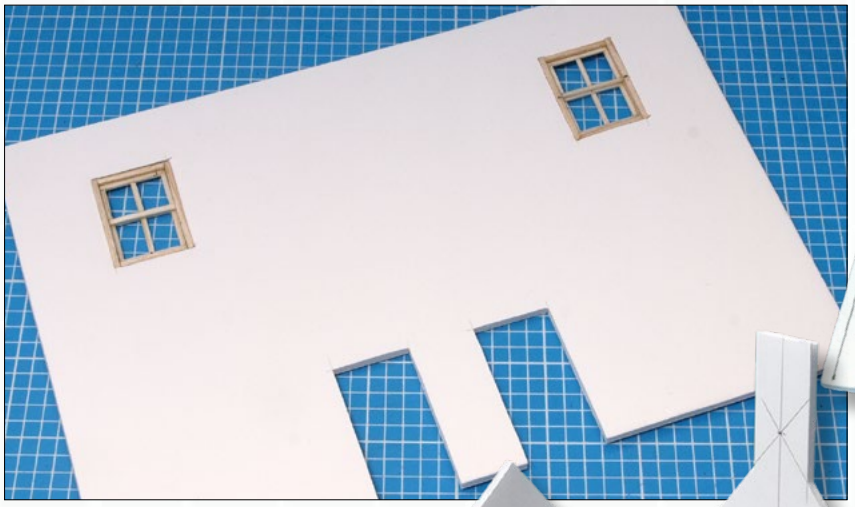
I integrated a chimney stack in one end wall. You can add one to the opposite end wall too, but I intended to make a separate chimney to help hold the rear roof in position.

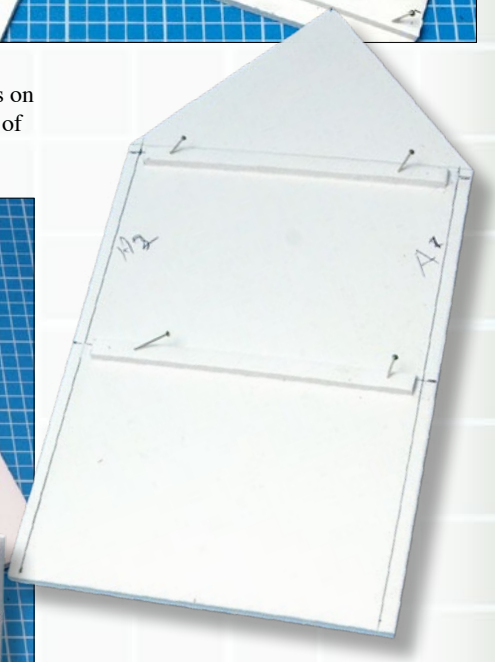
The rear wall was the same size as the front but without the gables. Just cut apertures to fit the pre-made windows and doors.

The two sides are lightly pinned to the front wall and measurements taken for the first and top floors.



The first floor is glued in place and keeps the building 'square'. The upper floor rests on the supports to allow access to the lower floor. Remember to allow for the thickness of the rear wall that fits inside the sidewalls.





Glue the front, sides and first floor into place.

Glue the rear wall to the assembly, and test fit the upper floor.

Before the roof can be constructed the chimneystack needs to be completed by adding the remaining sides. The chimney doesn't go down to the floor as this would make it harder to remove the upper floor.

THE ROOF

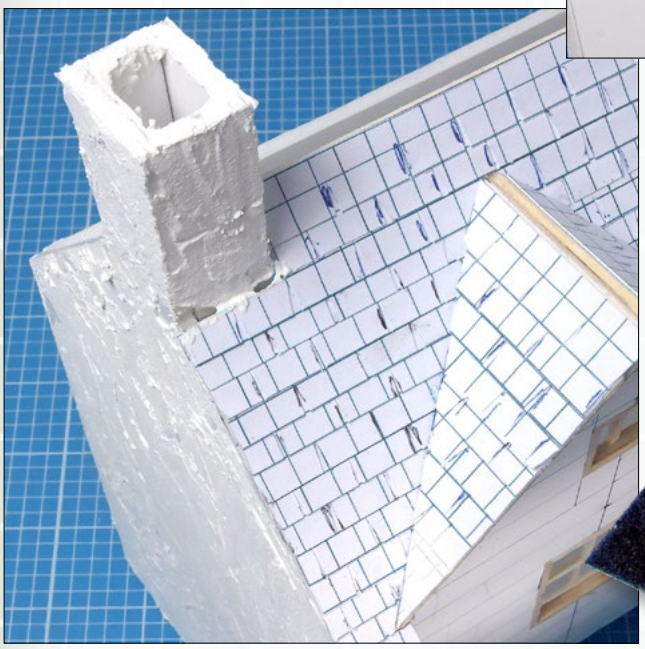
The front half incorporating the gables is glued to the building, but the rear section lifts off.

Measurements are taken from the model and the front roof section is made with two triangular cut-outs.

Glue some angle pieces of card on the reverse of the rear roof to prevent warping.

At this stage I coated the side and rear walls plus chimney with filler.

Both halves of the roof and the gables are tiled using strips of card that have been notched to simulate the appearance of individual tiles with each row overlapping slightly.



Cut thin strips of thin card for the gable ridges, score and glue in position.

Once the tiles have completely dried, cut a strip of thin metal.

Mark and lightly score the centre line and also score lines to suggest the gaps between the ridge tiles.

Carefully bend the metal strip along the ridge to match the pitch of the roof. Glue this central ridge to the rear roof.

Once dried you can hook the rear roof in position.

THE CHIMNEY

This is simply a hollow open-ended box with the lower opposite edges notched to fit the roof pitch.

Use the other chimney as your guide. Trim the lower sides to match the notch and to ensure the chimney sits neatly on the roof. Give it a coat of filler for texture.

THE SHOP FRONTS

There's no definitive design, so I'll just run through the steps and techniques that I used.

Line the inside of the shop front aperture with balsa beams. Select your door and add the vertical side beams and the horizontal crosspiece. The door and windows fit flush with the front of the building, and the assembly is glued in position.

The remainder of the frontage, made up from balsa strips and sheet is built up around the door assembly and glued into position. I use superglue because it dries quickly and soaks into the balsa for a strong assembly.

For variation you can set the door assembly back from the shop front. I used overlapping strips of wood-grain textured thin card for the building front.

The windows were removed at this stage to make it easier to trim the 'planking' around the windows. Then I added balsa soffit boards.

PAINTING THE BUILDING

I wanted a really grimey look so I gave the entire building a coat of matt black.

The roof was then drybrushed using Dulux Night Jewels 2. The 'wood' was drybrushed using 50/50 Night Jewels 2 and White.

The left shop front was given a thin wash of Dulux Luna Landscape 2, and for the door, Citadel Rhinox Hide. The right shop front right was Citadel Kharlock Green, and the door Citadel Dark Flesh. The windows were undercoated black and then given a wash of Kharlock Green.

FINAL TOUCHES

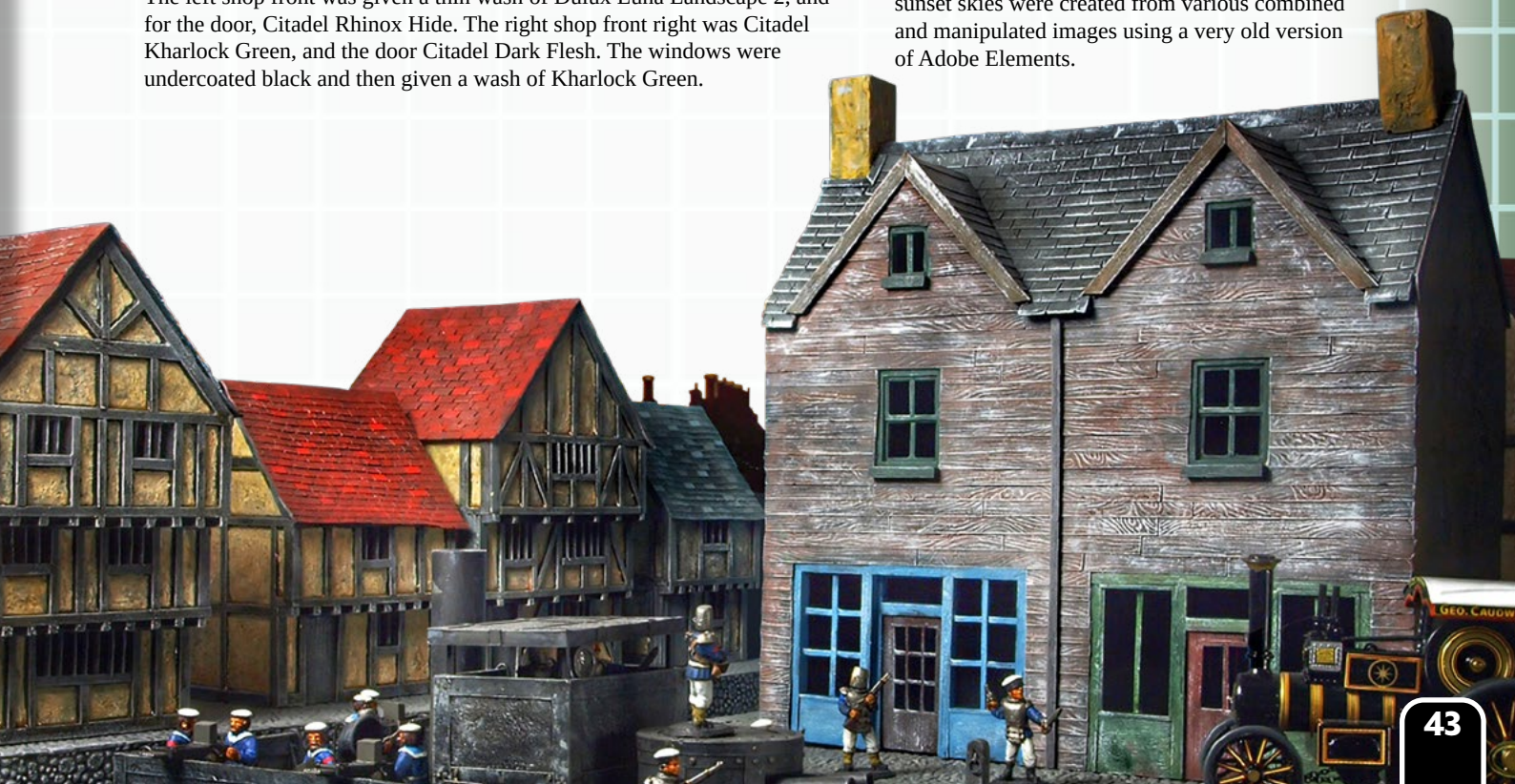
I added window sills beneath the windows and also a vertical dividing strip between the two shops.

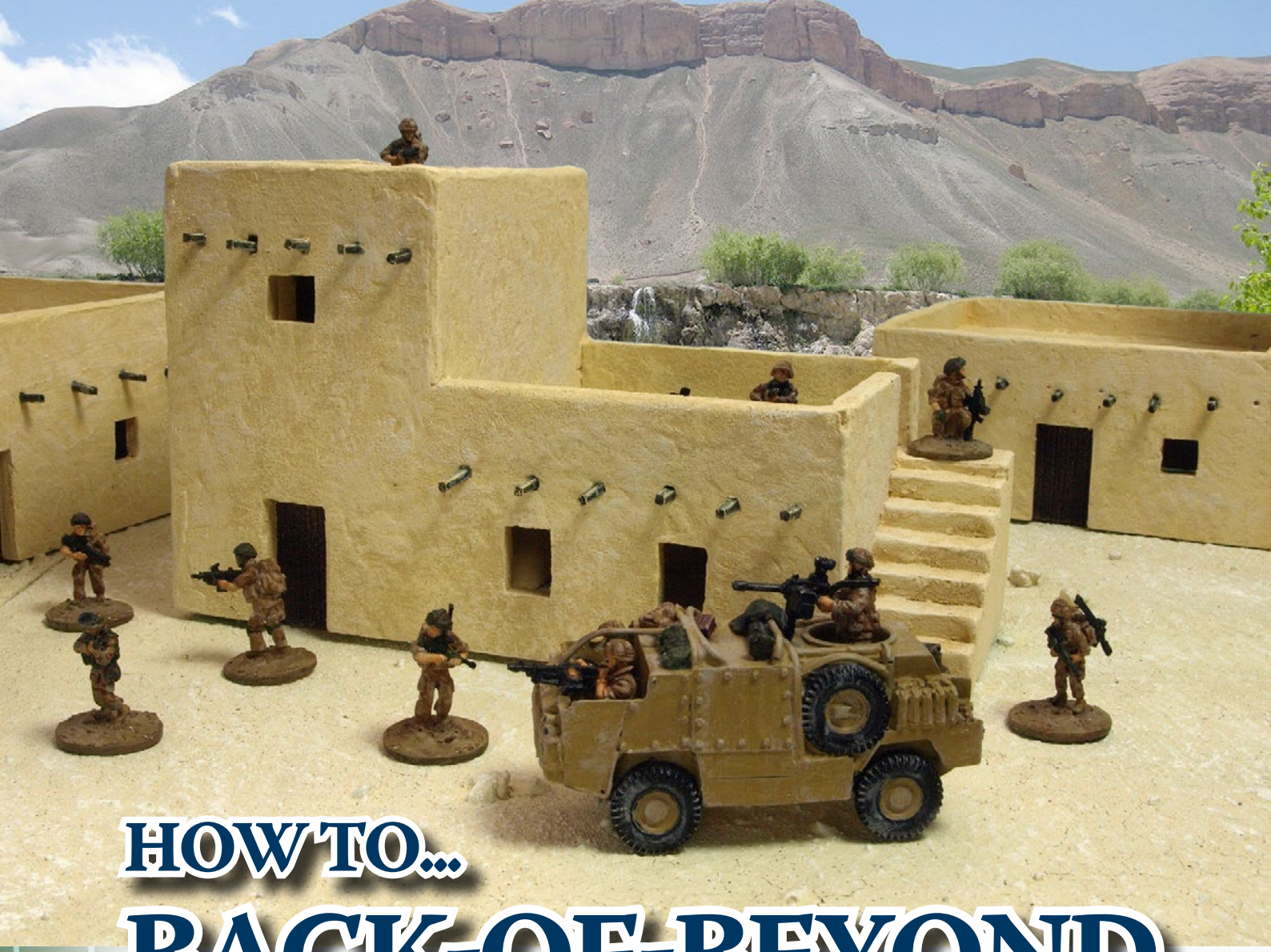
Shop signs were created using Photoshop Elements, printed out and glued onto pieces of balsa.

The signs were attached using Blu-Tak, so I could change them as required.

For photography, the finished building was placed onto a sheet of flagstones, the making of which was covered in my 'Modelling Tricks and Tips - Flagstone Terrain' in *WI335*, and then this was placed onto some cobbled street terrain as detailed in my book *Battlefields in Miniature* published by Pen & Sword.

The West Wind Productions hansom cab was loaned to me by Mark Densham. And the night and sunset skies were created from various combined and manipulated images using a very old version of Adobe Elements.





HOW TO...
BACK-OF-BEYOND BUILDINGS

Our non-resident 'How to'er' Paul Davies gives us some ideas on making buildings for the Back of Beyond theatre.

OK. I admit it. When I was asked to write a 'How to…' on 'Back-of-Beyond' buildings I wasn't sure where to start. An internet search for 'back of beyond' came up with: a place far away from a big town; a very remote place, and a film of the same name which was arguably Australia's most successful documentary.

But returning to the real world, or at least the wargame version of it, the term 'Back of Beyond' was used by Chris Peers to describe the area of Central Asia in which he set one of his *Contemptible Little Armies* rules supplements which concentrates on conflicts and forces, real and imaginary, that fought each other during the period 1917 - 1920, initially against a background of the Russian Civil War.

MATERIALS

Styrofoam
Basically foam board without the outer paper surfaces. Styrofoam is available in 3mm, 5mm and 10mm sheet and also blocks up to 165mm thick. Unlike foam board its surface can be textured in several ways, as described later in the article, and also in my recently published book; *Battlefields in Miniature* published by Pen & Sword (ISBN: 9781781592748).

Balsa
Probably the best way to represent wooden doors etc., is by using wood; in this case balsa. It's available in different densities. Choose the 'densest' because it's the easiest to cut cleanly.

Matchsticks
I say matchsticks, but the best option are not actual 'matchsticks' but rather the wooden sticks sold in craft or art shops which are usually straighter and better quality.

TOOLS

Scalpel blades and holders
For most cutting out, I use a scalpel knife with separate blades, and plenty of them because foam blunts blades rapidly, and a blunt blade rips, rather than cuts, foam.

Retractable bladed knife
If you extend the blade to the appropriate length, these are very useful for cutting 45° bevels in styrofoam. Don't buy cheap ones though, otherwise the blade will bend while cutting!

Steel rule
I recently started using a Maun Safety ruler, and since then my digits have felt a lot safer. To be honest I still use a conventional steel ruler for measuring and marking out, but for cutting, it's the Maun Safety Ruler for me every time, because its unique 'M' shape protects your fingers.

Texture roller
In *WI335*, I showed how to create your own unique texture roller using air drying clay wrapped around a rolling pin and textured with 'scrunched-up' aluminium foil. The roller is repeatedly rolled over the surface of the styrofoam sheet, and then the sheet is cut to the appropriate size for your building components. Remember, any exposed edges will also need to be 'roller textured' too.

What was clear from initial research was that most of the areas included within the label of Central Asia were relatively primitive and used variations of the adobe technique of building construction with slight regional differences.

Regular readers of my 'How to...' articles will know that I always try to get as much use from my buildings as possible, and adobe buildings tick all the boxes when it comes to multi-usability. Whether it's North Africa, the Middle East, India, or Central Asia, even the south-western United States and Mexico; past, present or future, with a little bit of compromise, your adobe building will fit right in.

Adobe is one of the oldest building materials known to Man, and was used as long ago as 500BC. Adobe bricks are made from local earth mixed with water, and apparently sometimes animal urine, with a binding material like straw, which is then pushed into a wooden frame, and left in the sun to dry. The bricks aren't particularly strong, which is why they're rarely used unsupported for buildings higher than two storeys, or where earthquakes are common. Wooden lintels were sometimes placed over doors and windows to take the weight of bricks above, and heavy wooden beams, often projecting through the outer walls, were used to support the upper floor roof beams. Finally exterior finishes such as mud, plaster or stucco were applied to protect the adobe bricks, primarily from water damage.

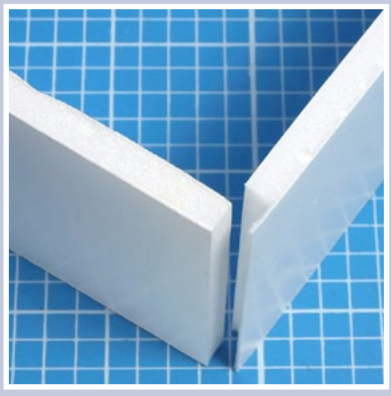
GENERAL TECHNIQUES

Joining walls

When joining adjacent walls together don't just butt them up. Even if you intend to 'plaster' over the walls with filler, or PVA them and sprinkle on fine sand you can often still see the end of one wall which looks awful. The best method for joining walls depends on the material you are using.

When using foamboard or foamcore, my technique is to carefully cut a notch into which an adjoining wall will fit. Draw a line parallel to the edge of the foamboard the same distance in from the edge, as the width of the foamboard, then with a blade resting just above the paper, cut inwards from the outer edge until you have cut slightly beyond the drawn line. Next very carefully cut along the drawn line and remove the section of material to leave a neat notch.

The adjoining wall will fit into the notch and the thin 'flap' of paper covers the end of it.



Styrofoam, which is what I use for the buildings in this 'How to…', requires a slightly different technique. A perpendicular line is ruled in the same way, but a 45° bevel is carefully cut in the edges of each adjacent wall.

To ensure accurate joining of walls I use Lego® bricks and also made myself a perfectly flat surface on which to work from a sheet of thick plate glass, a piece of blockboard and some mirror clips. Effective, cheap, easy to make, and durable.

Texture

When building a model, everything must be to scale, and this applies to wall texture. I've seen some adobe buildings where texture looks like it's been applied with a bricklayer's trowel and drastically over-scale. For this project, rather than apply texture either by applying filler, or by giving the buildings a coating of PVA followed by a sprinkling of fine (Chinchilla) sand, I applied texture by using my special Texture roller, as detailed in *WI335*.

It's best to texture both sides otherwise the pressure of the 'roller' can cause long strips of styrofoam to curl slightly. Don't forget that you also need to texture the upper edges of the walls. I find the best time to do this is after you have assembled the walls and added the upper floor/roof.

Exposed brickwork

Some modellers etch random sized brickwork into small areas of their foam walls which is OK if the building uses random sized stones for its core construction, but depending on the geographical area, most adobe constructed buildings use regular sized bricks, albeit often larger than conventional house bricks, so check out your references before picking up your engraving tool. Unless I'm making adobe buildings for a very specific location I tend not to show any exposed brick or stonework as it potentially limits the buildings' geographical location, but ultimately, we're talking about a game so let's not get too 'hung up on detail'.

Design and construction principles

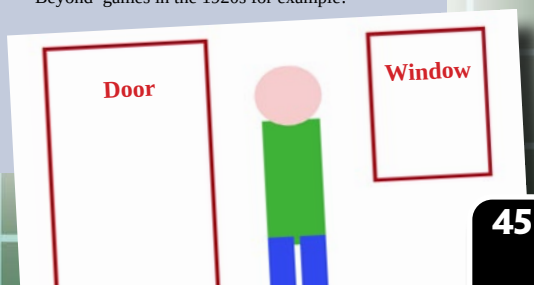
The design of adobe buildings is relatively 'free and easy'; rectangular and generally one or two storeys, and that's it. Adobe bricks are cheap and easy to make, but they're not always strong enough to support additional storeys without additional support in the form of heavyweight wooden beams that rest on the adobe bricks. Admittedly not every adobe constructed building incorporates these, but I just feel that buildings look more real if they're included, and as you'll see later, they are incredibly easy to incorporate. Apart from this basic structural element, you can pretty much let your imagination run free, certainly as far as the shape of your buildings is concened. I always try to make each one slightly different from the next though. For example, it's easy to add variety by giving some buildings an outside staircase to provide roof access, and I show an easy way to build these in this 'How to…'

MAKING A START ON ADOBE BUILDINGS

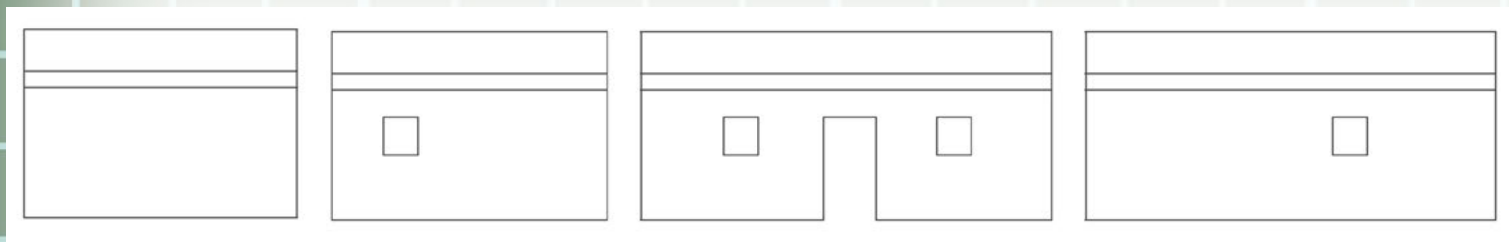
As ever, the first step is to create a scaling template for the height, size and positioning of the doors and windows, remembering that nothing looks worse than doors that look too small for a based figure to pass through, or windows positioned so that a figure couldn't fire through them unless they stood on a box!

That said, there's no need for the doors and windows of different buildings to be the same size, so your template is really just a starting point.

With the template created, gather your reference material together. Remember, you could be making adobe buildings for North Africa, Ancient Greece, India during the Mutiny or 'The Great Game', Outer Mongolia, present day Afghanistan, or even a futuristic desert planet. Just 'make the building fit', so exclude anything inconsistent with the setting for your wargame... so no satellite dishes for 'Back of Beyond' games in the 1920s for example!

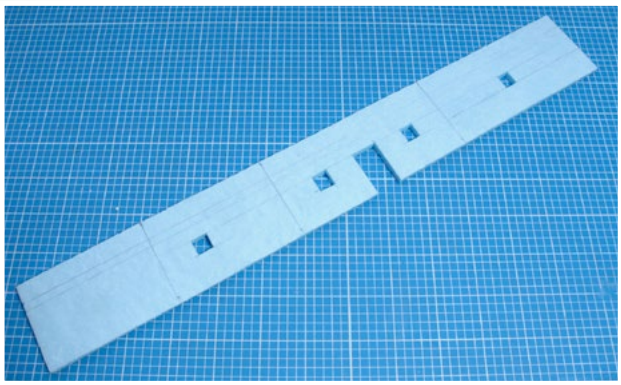


BUILDING ONE



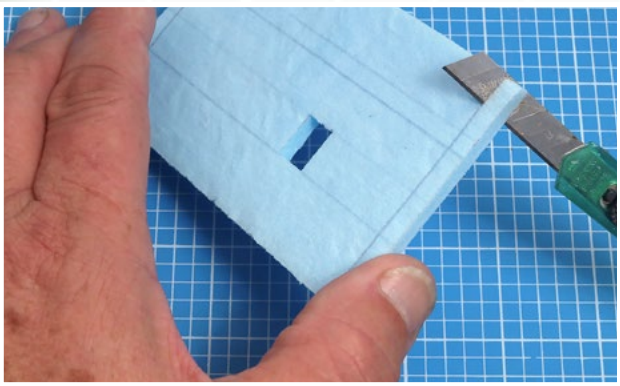
It seems almost superfluous to show a plan for this basic building, but since the construction steps follow a similar sequence as for larger buildings, we'll run through the stages.

Scale the plans to size and mark out the dimensions onto a sheet of styrofoam. I find it useful to mark the positions of the windows and door(s) and cut them out before cutting out each wall section.



In the case of these adobe buildings I also used my texture roller to apply texture to both sides of the styrofoam before cutting out the individual walls

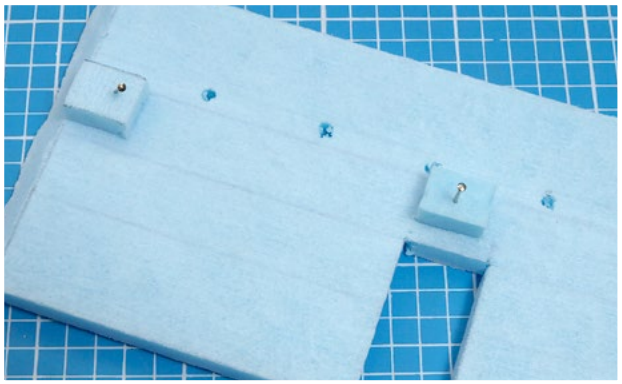
Cut a 45° bevel along the edge of each adjoining wall.



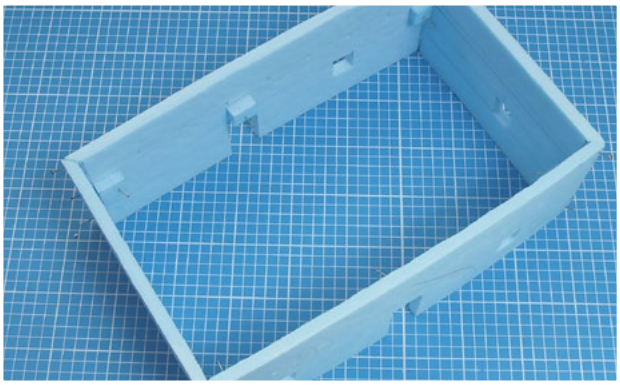
You'll notice that I am cutting towards myself which is never a good idea. Unfortunately cutting the angle is easier if you are working the blade towards you, so BE CAREFUL.

Before assembling the walls, make sure that you have marked the position of the upper roof. Drill a series of guide holes through which the supporting beams will be inserted later. Also add some small pieces of scrap styrofoam to support the roof.

I use pins to hold the supports in place until the roof has been glued in position and the roof beams added, then I remove the pins and supports.



Glue the walls together.



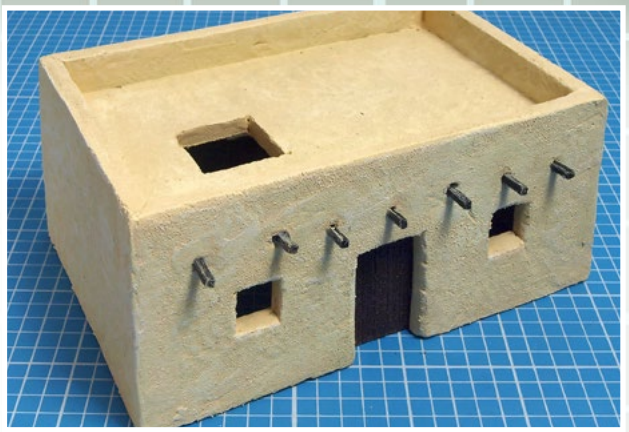
Measure the inner space and cut a roof to fit. Texture it using the roller. It's up to you whether or not you cut out a trap door aperture. If you're never intending to have the trapdoor open, then you don't need the hole; simply glue a trapdoor in position.

Fill any unwanted holes, and once the filler has dried slightly round off the wall corners, and the door and window apertures. After all, these are relatively primitive buildings that weren't built to particularly high standards of precision.

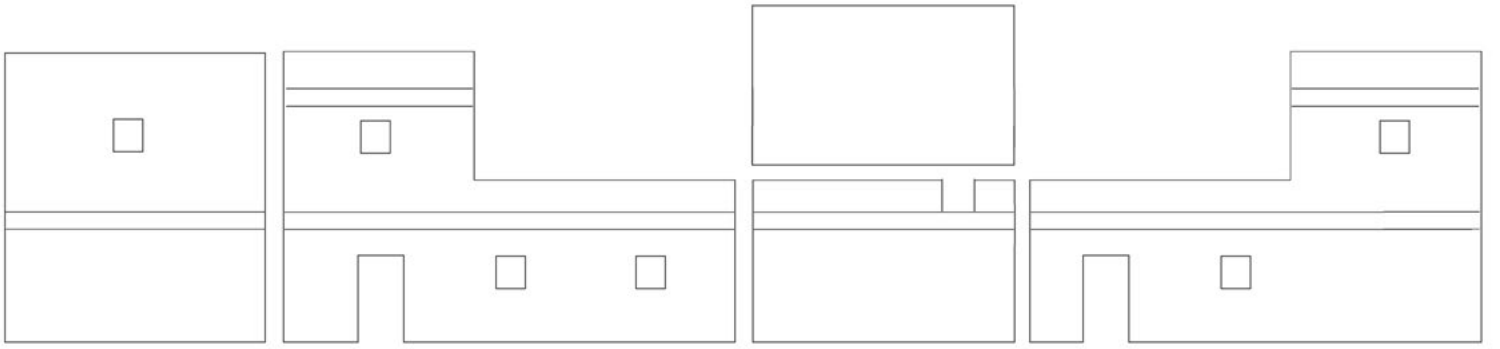
PAINTING

I use Dulux matt emulsions for painting my buildings and terrain. In this case I gave them a base coat of Golden Umber 4, followed by a drybrush of Californian Sun 4 and finally a very, very light one of Cameo Silk 1. The drybrushing picked out the texture created by the texture roller really well and added interest to what would otherwise have been rather bland walls.

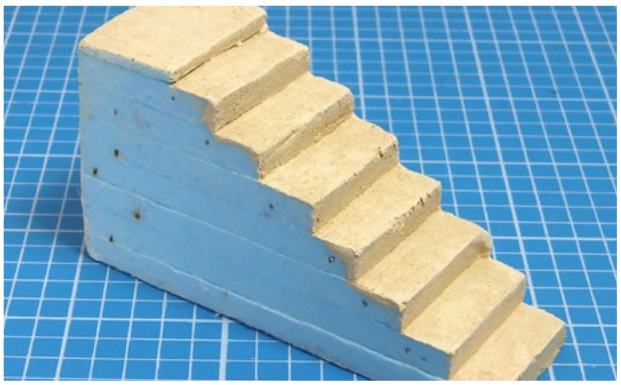
With the walls painted, cut the roof supports from lengths of 'matchstick', and the door from balsa sheet ruled with an old ballpoint pen to simulate planking. Note I always make my doors oversize so that they can be glued against the inner walls of my buildings. Paint all the wood matt black and then drybrush it with pale grey, before gluing it into position. The trapdoor is made in the same way as the door.



BUILDING TWO



This building has slightly different shaped walls as the plans show, but the construction follows a very similar process to building one, although this building incorporates a flight of exterior steps and a gap in the parapet to allow access. Once again, the inner dimensions are taken directly from the model to provide the size of the floor(s).



Once you have constructed the basic building, all that remains is to build the exterior steps which just consist of a series of styrofoam strips, each slightly shorter than the previous one, which are glued together.

The outer edge is coated with filler to conceal the layered construction, and then pinned and glued to the building itself.

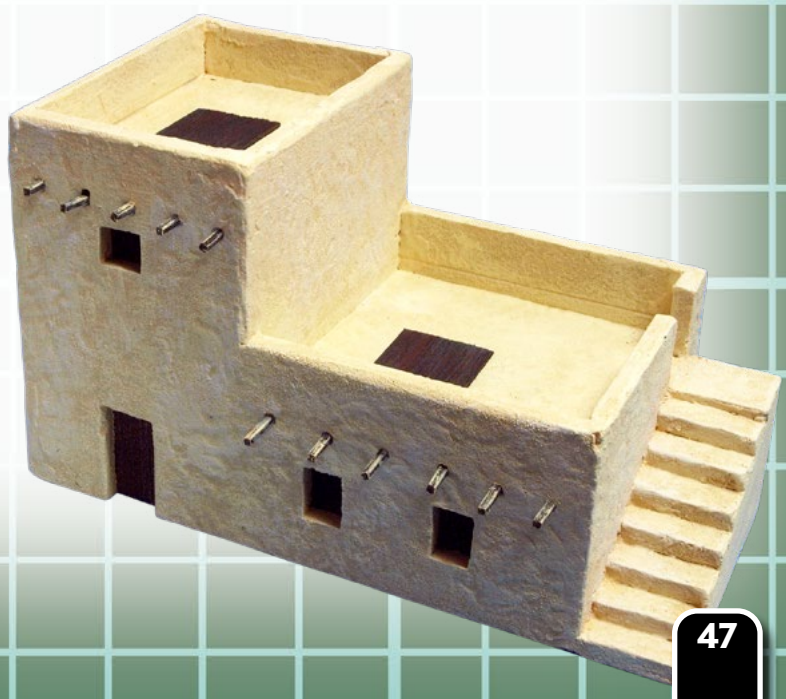
The supporting beams, door(s) and trapdoors are painted and then positioned as for building one, and the building painted in the appropriate colours.

And that's it. Obviously there's a lot of additional detail that can be added to individualise your adobe buildings, such as balconies, canopies, blinds. But I've deliberately kept mine as simple and generic as possible… after all there's always time to add little 'extras', although I confess that I did add some very simple ladders made from balsa stripwood.

Before finishing this 'How to…' about adobe buildings, I have to admit that there's something liberating about making them. You can just let your mind wander and create all manner of different buildings. For example this fort/compound could be described as 'organic'. I just designed and built it as I was going along, and that perhaps is the fun of making adobe buildings.

Acknowledgements

Thanks to Rory Crabb of Minehead Wargames Club for the loan, at very short notice of his 20mm Modern figures and vehicles to populate the buildings.



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Over recent years *Wargames Illustrated* has produced a series of modelling articles entitled "How to ..." in which some of the best model makers currently working in the hobby have created easy to follow guides for their fellow wargamers, so they too can construct terrain, buildings and other eye-catching gaming pieces for the tabletop.

This publication is the second in a series of three volumes which combine the best of those "How to…" articles and present them in a clear and easy to follow format. Using the ten different guides within, gamers and modellers will be able to make their own explosions, tents, bridges, farmhouses and more besides.

Take a look inside and see "How to..." construct a myriad of different tabletop models.