MODELLING WORKSHOP

ORK BUILDINGS

By Adrian Wild and Simon Tift

We often receive letters at the Games Workshop Studio, asking how all the models and buildings we show in the photographs in White Dwarf have been made. They are all scratch built by our modelling expert Adrian Wild, and in this article he explains how to go about designing and constructing Ork buildings for Warhammer 40,000.

MAKING TERRAIN

Building gaming terrain is one of the most rewarding aspects of the Games Workshop hobby. If you're new to Warhammer, Space Marine or Warhammer 40,000, your first few battles will probably be played on a flat tabletop with the terrain you get in the different boxes. This is fine to start off with, but sooner or later you will want to add some pieces of your own, to create more challenging and interesting battlefields.

Modelling terrain, like painting miniatures, involves the use of a few simple-to-learn techniques that you adapt to the task in hand. In previous articles we've talked about some of the methods you can use to create different kinds of cover such as hedges, walls and jungle (WD164), and also how to go about constructing model buildings (WD154). With the release of the Ork Codex, we decided to take a more detailed look at how construct Ork buildings (or Orkitekture!) for your games of Warhammer 40,000.

The very nature of Ork buildings makes them one of the simplest Warhammer 40,000 modelling projects you can have a go at. Ork construct their buildings in a very haphazard manner, often making no more than a collection of square or rectangular boxes that attach together to form an Ork settlement. Once you've got the hang of making the basic shapes, you can add more and more detail and personalise your models by painting them to match your own Ork clan colour scheme or covering them with Ork glyphs and symbols.

WALLS

I normally use foam card to make my building walls although thick cardboard would do just as well. If you haven't seen foam card, it consists of a sheet of polystyrene foam sandwiched between thin card. It's light, easy to cut but still very strong which makes it the ideal material to make model buildings with.

You start making an Ork building by marking out the walls. Firstly, cut out a strip about 300mm long and 90mm wide. Try to cut the sides as square to one another as possible but don't worry if your walls aren't perfect. It's best if you mark one of the long sides of the foam card strip as the bottom of the wall to avoid confusion later on.
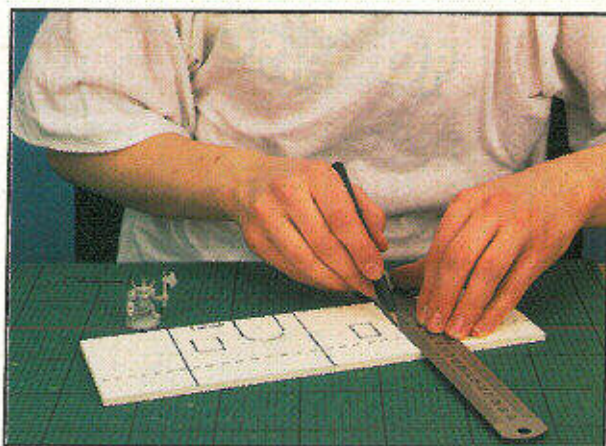
Once you've marked out the details, you can separate the individual wall sections.

Once you have your strip of foam card you can draw on the location of wall sections and mark the position of the roof. The small Ork building is made from four wall sections that give a building about 90mm long, 70mm wide and 90mm high. Obviously, once you've finished your first model you can alter these dimensions to make a selection of different sized Ork buildings. I made my building this size so that a five man squad can easily fit on the roof.

Measure along the bottom of the foam card strip two sections 60mm wide and two sections 90mm wide and mark their positions with a pencil. Next, measure the same widths along the top of your strip and join the marks from top to bottom. Now, measure 65mm up from the bottom of the wall at both ends of the strip of foam card and draw a thin pencil line joining these two points. This line shows where the ceiling will be inside your Ork building and gives the position of the roof.

DOORS AND WINDOWS

Below the position marked by the ceiling line you can place doors and windows. I normally position and cut out all the doors and windows before I cut out the wall sections because it's easier to work on a single large piece of foam card than several small ones. Fortunately, Orks are not too concerned where they have their doors and windows, which makes them really easy to make! The random placing of windows throughout an Ork building looks good and adds character to the model.

I have cut three windows in my building, which vary from a narrow slit to a window large enough to show most of an Ork miniature. When cutting windows or doorways, try to leave a 10mm gap between the frame and the edge of the wall, or the next frame. This gap helps the foam card retain some of its strength. When you have decided where the windows will be just cut them out carefully with a sharp craft knife.

An arched doorway looks good on an Ork building and is actually quite easy to make. First decide where you want the doorway to be and draw a rough outline onto the wall. Place a Citadel miniature by the side of the wall to give you some idea how tall and wide the doorway should be. Whenever I make any terrain pieces I always have a miniature close at hand to help get the building proportions right. The doorway on my building is 30mm wide by 40mm high with an arched top. Once you have marked the outline for your doorway, carefully cut along the lines with your craft knife.

ASSEMBLY

Once you've finished cutting out all the doors and windows, the wall sections can be separated from each other. Carefully cut along the lines with a sharp knife and metal ruler and you'll end up with two long and two short walls.

Take one of your long wall sections and glue one of the two shorter sections to the inside wall with PVA to make an 'L' shape as shown in the diagram (If you are using foam card to make your model don't use an impact adhesive such as Bostick as it will 'melt' the foam!). Make sure that the bottom of each section is flat on the tabletop and to help position the walls, match up the line of the ceiling you drew earlier. Repeat this process with your other two sections to make a second "L". Put both of these "L" shapes on one side to dry. When the glue is firm, you can attach the two "L" shapes together to make up your box. . The advantage of using PVA glue is that it dries slowly, and gives you time to reposition the walls if necessary. When gluing the walls together its important they are positioned as square to one another as possible.

I usually add reinforcement corners to my buildings. These not only strengthen them and support the roof but also help to ensure the building is glued together squarely. Reinforcement corners are right-angled triangular pieces of card glued inside each corner of the building. Normally I use two reinforcements in each corner, positioned at the bottom of the wall and along the ceiling line. It is important that the reinforcements are large enough to provide a lip for the roof to rest on – mine measure 20mm along the right-angled edges. Glue your reinforcements

in position with either PVA glue or all-purpose adhesive. Because of it's quick-drying properties, all-purpose adhesive is better.

### ORK BUILDING ASSEMBLY DIAGRAM

1. Glue one 'short' wall to the inside of one of the 'long' walls with PVA glue in order to make an "L" shape.

2. Repeat this with the other two wall sections and place both "L" shapes on one side to dry.

3. Glue the two "L's" together to make a box

4. Cut out the triangular corner pieces and glue them into the corners of your building along the line of the roof. When these are dry, carefully position and glue the roof so that it rests on top of them.

THE ROOF

To give my Orks hard cover to hide behind, I constructed my building with a recessed roof. This means that da Boyz can stand on the roof and pour fire down on unwary attackers.

The roof of the building is made from another piece of foam card which rests on the corner reinforcements. Measure and cut out your roof section and try slotting it into the roof space. Don't worry if the roof doesn't exactly fit the roof recess – if the roof section is too big just trim the sides a little until it drops into position. If you have gaps around the edges because the roof is too small, you can either cut out a new section and try again, or fill in the gaps with modelling clay. Once your roof fits snugly, you can glue it down onto the reinforcement corners.

Reinforcing the corners.
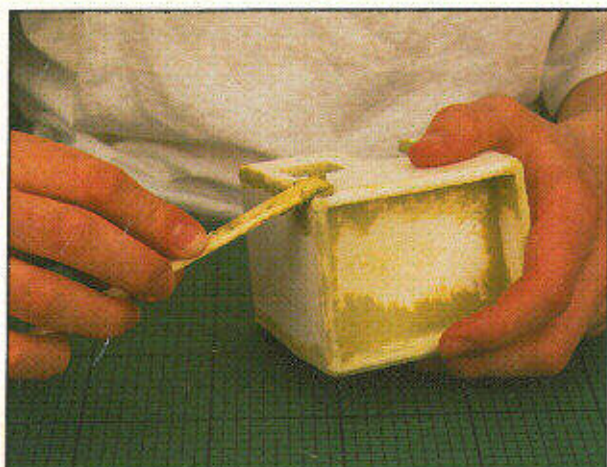
Texturing the walls and filling in the gaps.

FILLING IN GAPS

Now that your building is assembled you may find there are gaps around the walls and roof joints. There's no need to worry about these because most of the gaps will disappear when you texture the building. Larger gaps will need filling properly with either a modelling clay, like Das, or filling plaster – ready mixed Polyfilla is quite good. Carefully fill the gaps and allow the filler to dry.

I prefer rounding-off the exposed wall sections of my Ork buildings to give a neater appearance. To do this, trim along the exposed edges on both sides of the wall at a slight angle.

Coat all the exposed wall edges in PVA glue to seal the foam card and allow this to dry. Using modelling clay, gently form the rounded wall edge. The advantage of Das modelling clay is that by mixing it with PVA glue you can make a stickier and more malleable filling and sculpting material. The modelled edge can then be smoothed with a wet finger. Once the clay is dry, any rough areas can be carefully smoothed-off with fine sandpaper.

TEXTURING THE WALLS

I used textured paint to create the rough finish of the walls on my buildings. This can be purchased from most hardware shops or you can make your own by simply mixing sand and paint together. When texturing the walls, try and avoid painting smoothly in straight lines – I use an old paint brush and stipple on a plastered wall effect. It is important to fully texture over any exposed areas of foam card, otherwise, when the building is undercoated with spray paint any exposed areas of foam may melt!

PAINTING YOUR BUILDING

Once the roof and walls have been assembled, filled and textured the main building is ready for painting. Citadel white spray paint gives a good undercoat and covers any mistakes you may have made earlier. Once undercoated, the building can be painted with Citadel acrylic Bleached Bone. Staining on the walls and in recesses can be added with either Bestial Brown or Snakebite Leather. Thin down the stain colour with plenty of water and paint it very carefully onto the building. You can mop up any excess with tissue paper before it dries. Lightly dry brushing over the stained area with Bleached Bone and Skull White will blend it into the overall appearance of the building.

When the building is dry I add bands of colour and geometric designs that characterise the building's Ork owner. To paint the bands, first mask off the area you wish to paint. I use two long strips of masking tape set about 20mm apart to mark off the top and bottom of the band of colour. If the masking tape is only applied lightly to the walls, it won't damage them when you remove it.

Once the area of the band has been marked out you can experiment with different designs and patterns by drawing them between the bands. You may wish to personalise your building for one particular Ork Nob, or just use standard Ork designs. When you have drawn your design within the band, simply colour it in with Citadel Paints. Peel the masking tape off when the paint has dried thoroughly.

ADDING DETAIL

Adding small details like window ledges and doors really adds to the look of a building and is really easy to do.

My wooden door is made from a sheet of balsa wood 45mm long by 40mm wide. I use fairly thick balsa because plank detail can easily be engraved in to the wood surface giving it a realistic look. To make your wooden door, cut out a piece of balsa wood that will fully cover the doorway. Cut the door larger than the doorway as this will overlap with the door frame and so you can stick the door to the inside of the building. Roughly mark the position of the planks along the wood grain about 8mm apart, and cut along the lines you have drawn at a slight angle. Don't worry about keeping neat parallel lines, most planks are a bit warped and the odd variation will add to the door's appearance.

In true Ork fashion, I added metal studs and a big handle to my door. The metal studs were made using pin heads pushed through the balsa and superglued on the inside. As balsa wood isn't very strong, I supported the door with a ball of plasticine as I pushed in the pins (this also makes it less likely that you'll push a pin through your finger!). I used two looped lengths of fuse wire linked together to make the big metal door handle. Once all of the detail had been added, I painted the door Chaos Black and then drybrushed it first with Bestial Brown and finally with Orc Brown. Metal detail, like the studs and the door handle were just painted in Chainmail. Once the paintwork is all dry, just glue the door into position on the inside of the doorway.
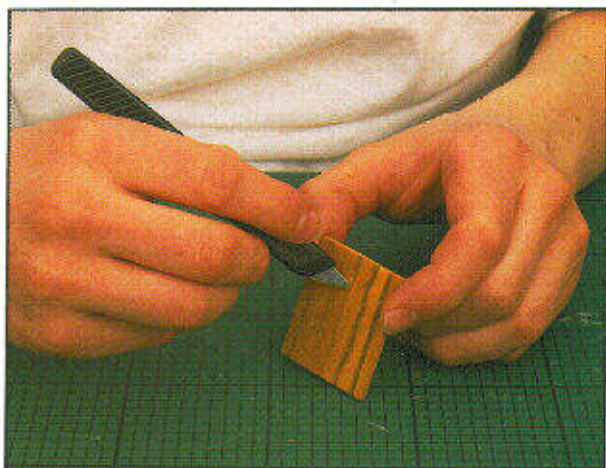
Cutting the details of the planking onto the door.
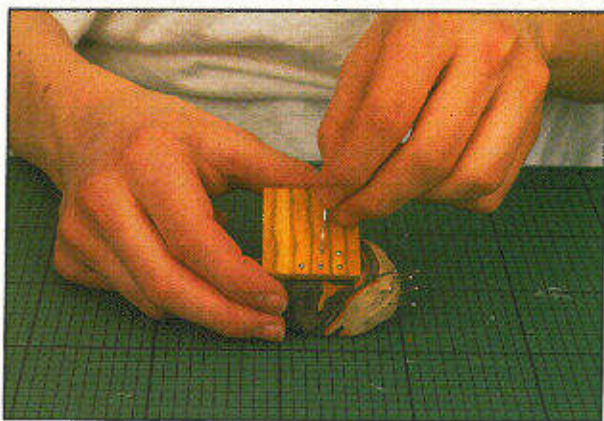
Pressing pins into the door to create the effect of metal studs.

WINDOWS

Window ledges are made from thinner strips of balsa wood cut and trimmed to fit the holes you cut in the walls. For plain open windows simply stick a piece of black card on the inside of the building to cover the window opening. I have added grills and iron bars to a couple of my windows make the building look more Orky. The grill is made from car body mesh that's been painted and then stuck to the inside of the wall with a black cardboard backing. Metal bars can be added by sticking either fuse wire or lengths of plastic rod to the inside of the building, painting them, and then backing them with black card. All metalwork like the bars, grills and studs is best painted with Chainmail paint and washed with a rust brown ink.

If you are feeling adventurous you can try sticking wooden shutters at the side of the windows in the same way as described for the roof hatch below.

ROOF HATCH

To give the Orks access to the top of the building, you can add a roof hatch. I made the hatch on my model from thin pieces of balsa wood. First cut out a piece about 20mm square, this will be used for the hatch. Plank detail can be engraved into the hatch in the same way as for the door although you will have to be far more careful not to cut all the way through the thinner wood. The hatch is framed with small strips of balsa about 5mm wide. Trim the edges of these strips to make them look a little worn. Now stick the hatch to the roof of the building with PVA glue and use the small balsa strips as a frame. Again I added metal studs to my hatchway using pins in the same way as the doorway.

PAINTING WOODEN AREAS

To achieve a realistic wooden effect look on areas like doors and ledges I first paint them Chaos Black. When they have thoroughly dried, these areas are drybrushed with Orc Brown and Bleached Bone to pick out the detail of the wood.

BASING YOUR MODEL

I mounted my building onto hardboard but thick card will do just as well, as it is readily available and easy to work with. The advantage of hardboard is that it is more durable and stronger than cardboard. At the Studio we base our terrain on hardboard because it is in constant use and needs the extra strength. To base your building, cut out a rounded piece of thick card or hardboard that will give you about a 40mm border all the way around the building. The edges of the base can be smoothed and rounded using fine sandpaper. On top of this, I stick a polystyrene ceiling tile to raise the height of the building and make it more of a centrepiece on the battlefield.

Use Copydex glue to stick the polystyrene to the cardboard base. This avoids the warping that PVA glue can cause when it dries and contracts. Copydex is a rubber-based adhesive that does not contract when dry and so doesn't warp the base.

When the glue is dry, trim the polystyrene with a knife so that it follows the shape of the base. Gently sandpaper the edges to make a slight slope but be careful to leave enough room for the building. The building can now be stuck to the hill with Copydex glue and allowed to dry. I mould modelling clay around the bottom of the building's walls and base to help it blend in.

Texture the base in the same way as the walls, painting liberally all over the base and up to the sides of your building. You can create contrast between the model and the base by adding piles of rocks and debris. Smashed up pieces of masonry, cat litter (unused!) and fine sand are ideal materials. When sticking bits to the base of your building it is a good idea to avoid gluing them in areas that will hinder the movement of miniatures when you play your games. I always keep an unpainted Citadel miniature nearby when I am making terrain so that I can check at each stage to see if the models will fit on my new scenery. I use an unpainted model because building scenery can be messy and I don't want to spoil my finished miniatures.
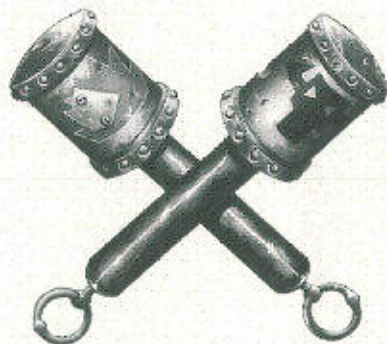
Once the general debris has been added and the glue is dry, the entire base can be painted Chaos Black. The base, and in particular the rocky areas, can be drybrushed Bestial Brown followed by Orc Brown and a very light drybrush of Bleached Bone. The grassy effect is added by painting the areas where I wanted grass Goblin Green followed by watered down PVA glue and then sprinkling on modeller's flock. Shake off the excess flock onto a sheet of newspaper, so that it can be used again.

Your Ork building should now be complete and ready to use. With a few changes to the dimensions and by adding extensions, balconies and even banners, you can create an almost endless variety of different Ork buildings to enhance you games of Warhammer 40,000 – have fun!