

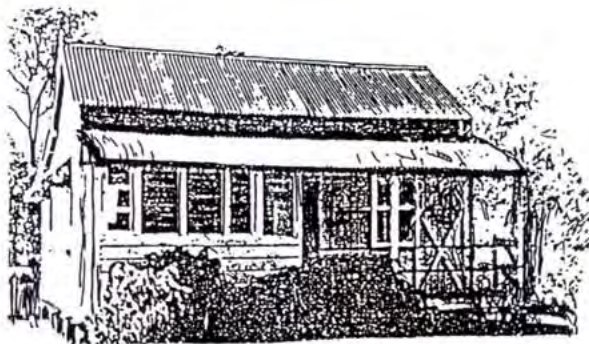
A Queensland Cottage

From Model to Card Kit

by Lynn Zelmer

A preceding article in Issue 40 of *Narrow Gauge Downunder* (January 2011) described the construction of a typical Queensland cottage in card.

This article covers the development of the Queensland cottage model as a card kit by describing the tools and approach you could use for any similar project. It also shows some of the variations that make individual Queensland cottages quite unique.



Additional layers were used to add the textures; overlaying and then combining a timber texture, for example, with the corresponding portion of the plan. Most of the lines were drawn with a three pixel width, although some details were drawn at two pixels, and a one pixel line was occasionally used for subtle detail. Many of the textures were extracted from appropriate pages on the purchased CDs. This is somewhat similar to selecting commercial door and wall components, commercial sliding materials, etc. from a hobby shop. The textures were rescaled, cloned,

Developing the Kit

The cottage kit was developed in Adobe Photoshop using a scanned copy of Jim Fainges' original drawings and several textures from the range of CDs provided by the firm of Clever Models LLC. Since the original drawings were 1:87 scale they were rescaled to 1:48 for use on my On30 layout. Photoshop has the ability to work with several layers, so the scanned drawings were individually straightened, then traced on a separate layer using a 'pencil' tool. They were cleaned up to provide normal plan views of all the exterior walls, doors, windows, roof, etc.

For the technically minded, I could have used Illustrator, a more specialised CAD application, to develop a vector format drawing that would resize to other scales more suitably, or even used three-dimensional modelling software. However all I wanted was an O scale version, so I stuck with a 300 dpi bit mapped image developed with software that I know well.

rotated or otherwise manipulated to produce the desired surface textures and colours.

Components such as the corner and eave trim were created separately by rotating plan or texture appropriately, and then applying a copy to the corresponding wall. Once the walls were completed as a virtual 'wrap-around' they were copied and pasted into A4 page sized documents for printing.

The cottage kit is available online at www.zelmeroz.com/CaneSIG, by following the links.

TITLE IMAGE: Jim Fainges' front view drawing of the Guldup Cottage. Scanned from the published drawing in "The Turntable" newsletter, this was the start of the cottage kit.

The side wall for the cottage, showing its development in Adobe Photoshop. An outline of the wall and windows was traced from the Fainges plans and formed the base for subsequent development. The window frame on the right has been textured but still requires interior texturing for the window 'glass', and a hole cut in the weatherboard when texturing is applied.

Textures from the Clever Models' CDs were colour corrected and cloned to size. They were placed as a layer under the outline; rotated and trimmed as necessary; and collapsed into a single layer for ease of handling. Window outlines similarly had textures applied, including curtains and blinds modified from images downloaded off the web.

The trim boards were cloned from the roof angles, then textured and applied to the walls. The vertical lines on the trim boards (where they extend beyond the walls) will be covered after the roof parts have been added, but have been left here for guidance during construction.



While the model photos vary in their colour balance, this image shows the colours as they appear on white card to depict weathered green boards and white trim.

Building the First Kit Prototype

The first build was done before drawing tabs for gluing the components together. The resulting mock-up provided guidance about the tab and brace placement, as well as identifying some missing components. I hadn't included window shades before assembling the sides, but fitting a shade to an unused wall section completed the mock-up activity. The greatest deficiency - aside from wavy walls and roof surfaces due to the deliberate lack of bracing - was one missing wall component. I had forgotten to include that portion of the front wall of the building above the verandah roof.

The second iteration of the design included the missing wall section, glue tabs where I had found them to be useful in the first model, curtains and blinds for the windows, and slightly larger roof surfaces.

The Second Build

The second build revealed a only few minor adjustments required to the kit but highlighted some changes to the assembly sequence. I had attached the trim strips along the top of each wall before assembling the walls, thinking that this would make assembly easier. It did, but the single-thickness unsupported ends bent every time I worked on a wall. Due to this distortion, once the roof was attached a small gap showed between the wall and the roof in several places. Applying the trim after the roof is glued in place obviously requires more care when gluing, but should result in a better appearance.

Similarly, I had extended the matte board wall bracing beyond the wall to support the trim in two places. Assembly required notching the adjacent wall corners to fit and resulted in trim boards a scale 5-6" thick for nominally 1" scale thickness timber.

The roof line braces and providing a large opening in the floor brace helped considerably in attaching the roof on the second build, and would be repeated in the third build.

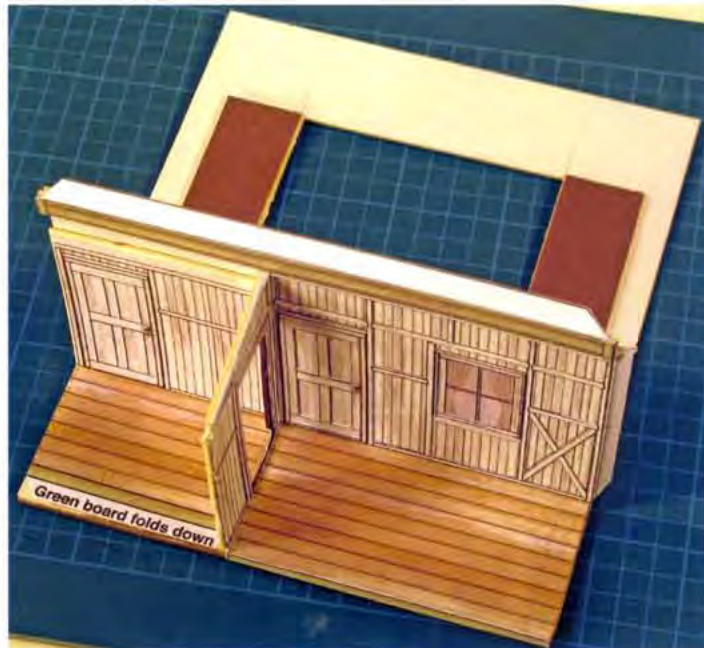
The Final Model

The construction of the third (final) build required several copies of most of the kit pages to have enough material for the board-by-board construction, extra wall trim, etc. I made a deliberate decision in all three builds to fit the verandah (and the sleep-out interior in the third build) to the floor before finalising the other wall modules.

The front, intermediate and back walls were all braced with matte board before fitting to the floor in the third build. The only bracing on the side walls was provided by the multiple thicknesses of the board-by-board construction, leaving matte board bracing to be fitted after these walls were fully assembled. In retrospect, it might have been sufficient to only use the heavy matte board bracing for the front and intermediate walls, to support the verandah and main roof.

Several of the glue tabs were removed from the wall modules during the third build, when it became apparent that glue from adjacent construction had hardened the card. This caused some glue tabs to partially or wholly break off at their score lines when bent. The thickness of the matte board and glued prints also caused the sleep-out door wall to extend slightly past the front edge of the floor. The jagged edge that resulted from trimming the assembled wall is visible in the photo of the first steps in the third build. It was trimmed more smoothly before adding the front wall.

The sleep-out interior detail was created as a floor and wall module with texture prints adapted from the nearby exposed verandah stud wall and the verandah floor. An additional print was added to the inside end wall before assembling the exterior walls, as it is potentially visible from the partly open sleep-out door. A battery-powered LED ceiling lamp illuminates the verandah and the hand painted figure immediately outside the door.

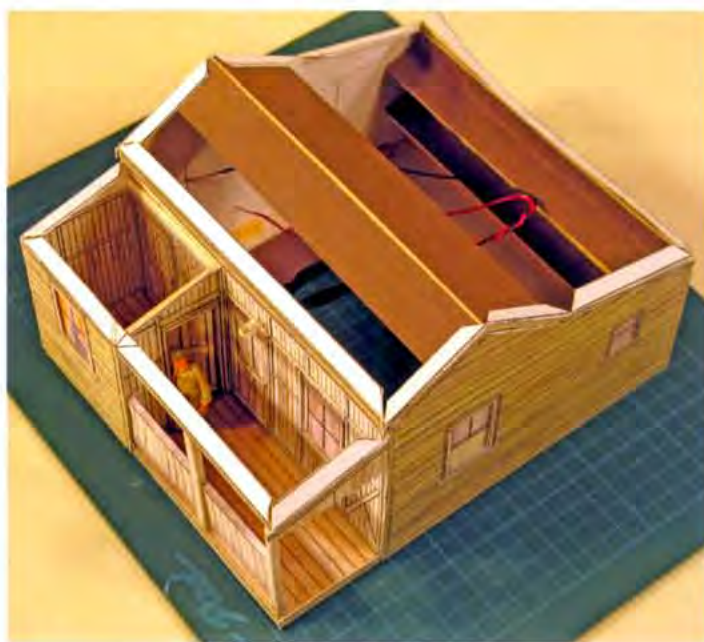


ABOVE: First stages of assembly in the third build: The underfloor is a single piece with a reinforced cutout for interior access of the completed model; it extends under the timber floor of the verandah and sleep-out. The verandah and sleep-out wall modules have been glued in place and a notch cut for the brace that will extend across the front of the verandah.

BELOW: Build three: Verandah railing and LED lighting are installed, all walls assembled and roof partially braced. The timber strip across the top of the verandah is a change from the second build and is braced with matte board. The glue tab extends across the full front and will improve the fit of the verandah roof.

The concertina-shaped matte board brace on the rear wall corrected a warp, although it might have been easier to rebuild the back wall. The weatherboards on the side walls were applied directly to a 210 gsm print and didn't seem to need additional bracing.

While the verandah roof should fit without any additional bracing, the rear roof slope still needs another brace similar to the peak brace. The curled card at the top back corner is the result of the glue tab separating when bent to shape; this will be corrected when the rear roof brace is installed.





ABOVE: Verandah railing on the third build: a modified Clever Models picket fence provided a weathered timber railing that matches the cottage's decorative verandah end. At the top of the photo is a partly constructed 4 x 2 board. This was created by scoring down the centre line, folding the print over and gluing it to form a double-sided sandwich. It's ready to be cut to width where shown by the arrow.

To assemble the railing, gaps between the pickets were cut out before two horizontal 4 x 2 timbers were glued in place. The 4 x 2 timbers will still be visible through the gaps and cutting off the scrap along the top of the 4 x 2 (at arrow upper right) provides an edge three layers wide, for gluing the cap rail into place. The railing still needs to be cut to fit between the posts and sleep-out wall, before the 4 x 2 cap rail is glued in place.

I changed my mind about modelling the verandah railing in styrene or timber for the third build. Instead I modified a Clever Models picket fence in Photoshop to make a weathered timber railing that matches the cottage's weathered trim and decorative verandah end. Posts were likewise created from the picket fence, folded and glued into squarish tubes, and cut to length with tabs for gluing.

Some minor changes were made to the files after completing the third build. These added multiple copies of some components (window variations and door knob sets, for example) to minimise the number of pages for printing.

Finally, the Photoshop files were 'printed' as PDF files and optimised for distribution using Adobe Acrobat. The cottage kit can be printed as is on an inkjet or laser printer for O scale use, or appropriately resized when printing for other scales.

The cottage can also be downloaded as an HO kit. Minor changes in assembly are required due to the diminutive size of the building and its components. If board-by-board construction is intended the HO version should probably be printed on sturdy smooth paper rather than card.

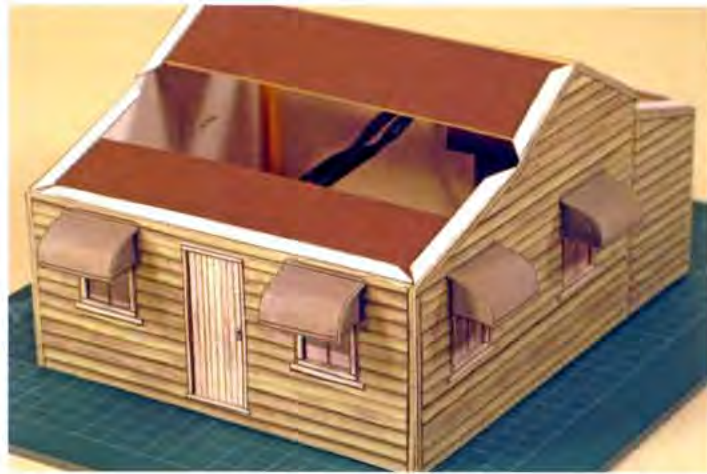
Potential Alternatives and Additions

Detailing could include a chimney; some power cables and a meter box; appropriate piping for both the kitchen and bathroom plumbing; and possibly a small roof over the back door, supported by a simple brace on either side.

Guttering (eavestrough) both front and back, is common on such structures. It would typically lead to a rainwater tank for a rural setting or even, prior to about 1980, for an urban setting.

A sheet iron or timber-framed stove recess (extension) for the original solid fuel stove would also be correct, replacing one of the kitchen windows. This recess could easily be fixed to the building if the sides are used as printed, but an appropriate opening must be left if applying individual weatherboards.

The iron roof is typical of Queensland practice where suitable timber for roofing/shingles was not easily available. Colourbond sheeting would also be appropriate, for a building that had been recently renovated with a concern for ease of maintenance rather than authenticity. With a suitable foundation or different roofing materials, the building could be adapted for other areas of the country or the world.



ABOVE: Build three, almost ready for the roof. Awnings have been installed following an initial sealing with 'clear matt' spray. The awnings are a compromise since metal construction often had the sides right out to the edge of the curved top.

The single thickness card awning may be prone to damage when handling the model - it might have been better to make the awning sides double thickness for added strength.

Individual board by board construction is quite easy with card models. One method uses a narrow spacer under the bottom of each board to hold it out from the board below when assembling the boards on a base copy of the wall.

Alternatively, make a couple of extra copies of the wall as I did, and cut alternate boards so that half of the board above remains attached. Assemble these on a base copy of the wall. This approach requires an extra copy of the wall but avoids the necessity to glue narrow strips at the base of each board.

When constructing the walls with individual boards, install slightly narrow vertical corner boards first and fit the horizontal boards to them. Add a second set of vertical corner boards after the walls have been folded and assembled; scoring them on the back side prior to being cut from the printed sheet will help in folding these narrow strips.

Consider assembling and gluing the awnings to the base wall before the weather boards are applied. These will cover the awning lip but this was typical of dwellings where the awnings were applied as part of the construction, rather than being added later by occupants.

The kit window is a single hung sash window; the bottom half slides up behind the top half, as in one of the windows of the third build. An alternative is to model a four pane non-opening window; in this case it would be quite possible to make an opening in the wall into the room behind, and insert a piece of clear plastic as window glass. One or more doors could be modelled in an open position. In Queensland doors (and windows) would normally have been open whenever anyone was home, to allow any breeze to blow through.

Modelling an interior floor should be reasonably easy. Two thicknesses of the matte board I used for bracing, plus one thickness of 210 gsm printed flooring, fits between the underfloor glue flaps and the door jamb. Flooring texture could easily be added to these pieces to create a realistic interior floor. The simplest option - as I have done on the third build - is to model a small section of flooring inside an open door, with a person or other detail blocking further view of the interior.

The kit includes some interior wall materials, including one draped window. These can be adapted as appropriate, and miniature bulbs or surface mount LEDs used for lighting.

A removable roof would be required for fully detailing the interior. Likely, the easiest way to do this would likely be to fabricate roof braces that would hold their shape both on and off the cottage. The weatherboard trim boards at the eaves could perhaps be fastened to the roof so that they fit outside the walls to eliminate the possibility of a gap between roof and wall. Wall bracing would also have to be modified accordingly.



IMAGES THIS PAGE show front and back views of the completed third build: The cottage is complete, and card stumps, rain caps and steps have been installed. The rear roof has guttering (eavestrough) installed but the downpipe of styrene rod does not connect to the rusted water tank. Several different window treatments are shown, including one with an occupant taking a photo of the viewer; another with an open window and loose drapes (a separate texture layer).

The cottage can still be lifted off the stumps. The caps are fastened to the cottage and hide the join, and the steps are separate units slid into place.

Modelling Techniques

Scoring versus Cutting: Most bends need either scoring or cutting in order to achieve a straight finished edge. I used the slightly rounded edge of a small metal rule for scoring the back side of a single thickness of card. It gives me a dependable indentation and bending guide without cutting through the surface of the card.

When a sharper corner is required I use a sharp-pointed scalpel blade to lightly cut the front surface of a single thickness of printed card, or almost all the way through a matte card backing sheet. For example, outside corners can be lightly cut prior to bending since they will ultimately be covered by another layer of vertical trim. This vertical trim should be scored on the back to avoid having a cut edge showing.

The matte board backing on the verandah enclosure had to be cut almost all of the way through to provide sharp corners when the enclosure was bent into a semi-box shape. The right angle corners also help hold the various sections straight, as the card tries to curl when humidity changes.

Cutting small openings: In many respects, cutting the final version of the cottage was simpler than for the mock-ups. For example, I knew that because the windows would comprise several layers of card, I could cut beyond the edges of a hole in the base layer. Any overcuts will be hidden and reinforced by the subsequent layers of window frame. Again, plan ahead so that you know when it's possible to cut inside or outside the line.

Gluing small components: Planning the sequence of assembly really pays off when gluing small components. I cut window holes in the

base layer first, then glued the first layer of window frame in place. It was easy to remove excess glue from the window holes; and glue on the wall beyond the frame didn't matter as it is covered when the weatherboard siding was applied. The interior window layer (glued behind the base layer) came last. While I didn't want to get glue on the exposed window, glue slopping over on the back wasn't a concern as it would never be seen.

All of the trim boards were added to each wall as a single piece. The weatherboard areas of the wall were removed from one print, leaving just the trim boards, glue tabs and some of the surrounding card. This was covered with glue and laminated to a print of the base wall. This gave me a much stronger layer to work with, and avoided having to spread glue and place so many small pieces. It did result in double thickness glue tabs in some locations; these were then lightly cut from the front prior to folding - although a couple partly broke off when folded due to the brittleness of the glue.

Realistic thicknesses: Card modelling has limitations! It is very difficult, for example, to model a scale 2 x 2, or even a 4 x 4 in card, that has any strength. A couple of the roof trim boards on my second mock-up were 5-6 scale inches thick because of the way I mounted the matte board backing. While they need to be thicker than a single thickness of 120 gsm card when viewed end-on, a couple of 120 gsm thickness looks realistic and should be strong enough. On the other hand, a single thickness looks quite reasonable to represent a 4 x 2 when viewed face-on for the exposed stud walls of the verandah.

Finishing: Card models need to be sealed when completed. Use a good quality artist's matte spray or similar clear finish in an airbrush.