

Modelling a Fettler's Shed



by Lynn Zelmer

Prototype Sheds

Fettler's sheds and camps were located at many stations around Queensland and provided storage for section cars and tools for track maintenance. Several small fettler's cottages, or even semi-permanently sited camp wagons, might be located nearby since daily track maintenance was provided by locally-based crews, rather than today's 'as needed' crews despatched from centralised maintenance depots with trucks and 4WD vehicles.

Various sizes of fettler's sheds, or section car sheds as they are sometimes known, can be found along railway lines in every Australian state and worldwide. The O scale (1:48) shed in this article was inspired by a Queensland Rail (QR) shed at Mount Morgan in Central Queensland but has been modified to fit a specific location on the On30 Capricorn Sugar Rail Museum layout. Similar modifications can be used to develop a structure for your layout.

The Mount Morgan shed has eight stalls, four of which have tracks leading inside. It sits at the south end of the station precinct, presumably to ensure that section cars and trailers could be easily moved out for fettler's duties without disturbing regular station operations. The structure itself is timber framed with iron sheeting for its sides and roof. The front has timber slat doors mounted on rollers so that they can be pushed to one side for access to the stall. Doors alternate in front of and behind the front wall posts to provide access to all stalls. As is common with such structures, not all stalls have been fitted with rails for storing section cars, trailers, etc. Instead they are used for navy tools and materials, and sometimes even as a temporary residence.

The shed capacity depended on the anticipated use, with some single stall structures built in early QGR days. The floor and apron might be concreted at a major terminal but was more likely packed earth. A newly built shed will appear neat and clean, an older shed will show signs of use, and sometimes abuse or neglect (including graffiti). The Mount Morgan shed is unpainted except for its doors. A similar shed now relocated to the Emu Park Museum is fully painted in QR's standard dark red livery, while a four stall shed at Sarina is painted in an earlier cream and brown livery.

TITLE PHOTO: Mount Morgan's eight stall fettler's shed at the south end of the station precinct (end of the platform in the foreground), 2012. The station precinct is now home to Rockhampton Regional Council's Mount Morgan Railway Museum with trolley (section car) rides on market days and by appointment. The connection to Rockhampton with its rack railway section was behind us. It is hoped that the bridge and several kilometres of the line beyond the gates will eventually be restored for use again as a tourist railway.

Designing the Model

The model serves several purposes. First, I needed one or more small structures to complete the loco maintenance module of my Capricorn Sugar Rail Museum. Second, O scale fettler's sheds are not available commercially, so extending the development process to result in a card kit expanded the availability of Queensland models. Finally, building the model and creating the downloadable kit based on the model provided the inspiration for this NGDU article.

A fettler's shed should be approached as a simple modular structure with the potential to be built in any length from a single stall to eight or more stalls. Photorealistic iron and timber textures will make a reasonable model at normal viewing distances, but the doors are critical to achieving an interesting model, thus figuring out how their individual board construction was my first challenge.

I began with two field dimensions (the width of a door and the distance from the ground to the peak of the roof) and a number of photographs, several of which are included in this article. The photos were rescaled and 'transformed' (rotated, stretched and squeezed so that walls were square and boards straight) in Photoshop. As I've mentioned previously, most image manipulation or drawing programs will work for these tasks. I use Photoshop because I've been using the software since the early 1990s and don't want to learn another package.

I also had a John Armstrong drawing of an early single stall Queensland Government Railways fettler's camp and a photo of a four stall O scale hinged door shed built in styrene by Jim Hutchinson for Ron Aubrey. These Queensland modeller's have extensive knowledge of QR and I might have inquired more closely about dimensions, etc., but since I was developing a structure for a specific location on my freelance layout it turned out that a three stall shed following general QR practice would nicely fit the space available.

I might have been able to get away with just one or two simple sketches if I had been building in styrene or scale timber and corrugated sheeting. However a card kit requires formal drawings for every visible surface and shape, complete with the location of doors, windows, etc. Photorealistic textures are then applied to these surfaces to provide details, colour and shading—visual believability in other words.

Drawing the shed initially as a two stall structure allowed me to determine dimensions, answer the question whether three or four stalls would fit my site, and fix the location of posts, horizontal stringers, rafters, etc. I then used computer cut and paste techniques to add another stall before adding the surface textures.



ABOVE: This view has been created by stitching several shots of the shed together to make a panorama. Note that only four stalls have 3' 6" gauge tracks leading to them, and that only two of these have timbers between the rails to make it easier to move the section cars and trailers to and from the main line. All of the shots were taken from the same position, thus the seemingly curved track. In reality the track is fairly straight at this point.

Care must be taken to determine the actual surface structure. The conventional end view of the shed, for example, doesn't show the top portion of the wall hidden by the roof overhang. The final textured end wall must be high enough that the iron sheeting goes right up to the roof of the assembled shed.

The wall drawings were extended for a three stall shed and both interior and exterior textures were applied. The Kinkara Tea poster, scanned from a Gwydir Valley Models decal set, was applied to one end wall and weathered in place. QR practice would not have allowed commercial posters to be painted on railway structures but Capricorn Sugar was glad to receive the revenue and it adds interest to an otherwise plain structure. The bottom edge of all walls, interior and exterior, were also weathered to reflect the result of a dirt floor and rain splashed mud.

The roof was similarly created from a drawing with the photorealistic corrugated iron sheeting applied as a texture, and the various timber components were scaled and textured. In both cases the textures were sourced from textures on a Clever Models llc CD, just as I might use store-bought scale roofing materials or scale lumber on a model scratch built using more traditional materials.

The door was 'drawn' by the electronic equivalent of tracing a properly 1:48 scaled image of a Mount Morgan sliding door onto a layer in Photoshop. The drawing was then used as a 'mask' to eliminate all of the image outside the drawing and create the painted timber textures for the upright slats. A braced 'X' pattern was then 'cut' from the resulting door image to provide a base for locating the individual timber slats making up the completed door.

BELOW: Mount Morgan eight stall fettler's shed seen from the railway precinct. Note that only some of the stalls have tracks leading to them and only some of those have timbers laid between the rails to assist in lifting and turning section cars and trailers.



BELOW: A four stall shed in the yard at Sarina, 1990, similar in design to the Mount Morgan shed. This shed is painted in a cream colour with brown trim, an earlier QR livery, and likely has a packed earth/cinder floor. Note the navy gear in the foreground for potential modelling detail.

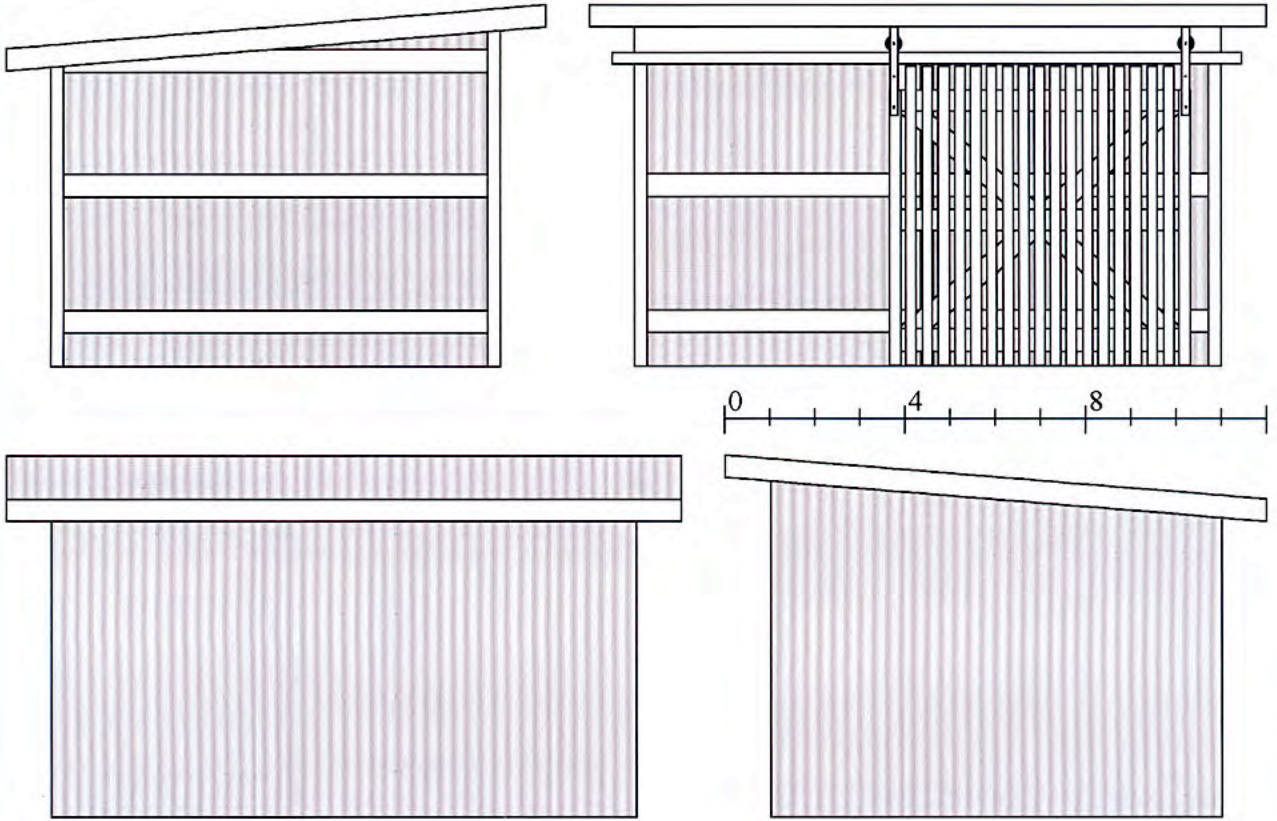


BELOW: Mount Morgan's shed is located on a slight curve leading into the station precinct. The house beyond the shed was originally used by railway workers, perhaps even the station master. The alternate arrangement of the doors behind and in front of the front wall posts is evident in this view.



BELOW: A modern colourbond sheathed navy shed with roller doors (centre) for use by section cars, road/rail and other navy vehicles in QR's Sarina maintenance precinct, 1990. Given its age, it's likely that the shed has a concrete floor. The older four stall shed is two buildings beyond.





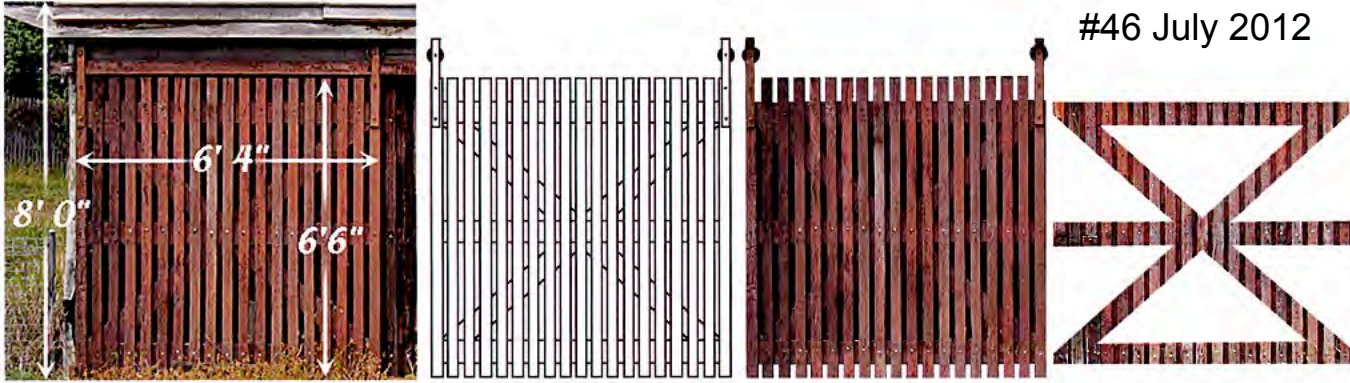
Conventional interior and exterior views of a QR-type sliding door fetter's shed based on an eight stall shed in the Mount Morgan station precinct. The drawing shows only two stalls, repeat to build wider sheds. The drawing also shows only one door, a door is required for each stall and they alternate sliding in front of and behind the front wall posts. A post is required both back and front between each stall and at the middle point of each end wall. Scale 1:48 (1/4" = 1' 0").



ABOVE: This is the reference photo used to create the texture for one of the doors and to scale the size of the shed. The door is 6' 4" wide and it is 8' 0" from the ground to the top of the roof, all other dimensions have been scaled from these two measurements. The model's roof has more overhang than this shed, but the overhang dimension seems to have been flexible, perhaps depending on when the shed was built.



RIGHT: Detail photo showing doors, door roller guide, door locking (one at waist height, the closer one at top of door), ground level stops to prevent door being opened too far, and 'decorative' drip end of fascia timber.



Sequence of images showing the development of the door. First the door reference photo (left) resized to 1:48 scale, then the door drawing created by more or less tracing over the reference image in a separate layer of the image manipulation program. The next image shows the door drawing after the timber textures, lifted from the reference drawing, have been added and some of the spaces between the slats cleared. There is no need to clear any of the other intermediate spaces as they will be scrapped when the individual boards are cut out. The fourth image (right) shows the supporting timber framework ready to have vertical slats applied as individual boards. Other doors were created using the same drawing and textures from different doors. Scale 1:48 (1/4" = 1' 0").



The finished artwork for one of the end walls with weathering along the base of the wall. The Kinkara Tea poster was scanned from a decal set and weathered along the corrugations in Photoshop to look as if the sun came mostly from one direction. This section folds in half to create the double thickness wall, but is fitted around the rear wall glue tabs during assembly to create a three section length (back and two ends) before adding the horizontal braces and posts. Scale 1:48 (1/4" = 1' 0").

Building the Model

The finished components were printed on 210 gsm white card, cut out as appropriate and the edges coloured with an artist's felt pen to eliminate their white edges. As the photos show, the front wall was built as a single module on a heavier mat board base. The doors required patience and a very sharp knife but were otherwise easy to assemble. The front posts had printed textures wrapped around their sides, and the doors were positioned and securely glued in place to ensure that the wall and posts remained square.

The three iron sheathed walls (back and two ends) were likewise assembled as a single module. Glue tabs were left on each end of the inside back wall component when it was cut from the printed card; the outside was then glued to this, making a double layer of card. The inside and outside prints for each end wall were cut as a single piece, scored for bending and attached to the back wall making a three card sandwich at the joint with the back wall glue tabs as the 'filling'. The trickiest part of this operation was to ensure that the base of the three wall components was straight; this was done by lining the parts up against a straight edge as they were being glued.

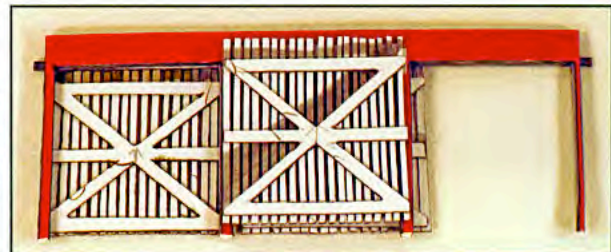
The internal boards are fabricated from double thickness card so that they are almost scale thickness as well as width. Glue the printed texture to a second sheet of 210 gsm card before cutting the timbers apart, remembering to colour the edges before installation. This helps keep the walls from warping as well as adding to the 3D effect. The internal posts are pre-stained scale timber from the scrap box to help keep the walls from warping. The front wall was glued in place so that the iron sheathing covers the outer side of the front posts on each end, holding them upright. Heavy mat board braces were glued along top of both the front and back walls to provide a wider gluing base for the roof and to further keep the walls from warping.

The roof is a double thickness of card with corrugated iron texture on both sides. The timber roof framing (along the underside of the roof) was assembled as part of the underside of the roof. Glue tabs were left on the hidden side of the boards only, forming a shallow box that keeps the corners square and closed. Other rafters or roof joists were not modelled as they cannot be seen under normal conditions, but could be made with double thickness card (timber texture on both sides) if desired.



ABOVE: Front side of the assembled front wall with all three doors in place. The design of the shed is such that alternate doors slide behind the front wall posts. In this case the centre door is closed but can just be seen looking at a sharp angle to the front wall. All materials used here are card, including the upright posts.

BELOW: The back side of the front wall and doors showing the construction and mounting of the doors. The printed texture for the front wall posts extends around the post sufficiently to hide the (red) mat board backing but doesn't go all the way around. From a construction point-of-view this makes assembling the posts easier and ensures that the end posts have a firm surface for gluing onto the end walls.



model was finished with a clear spray to seal the printed surface and provide some environmental protection. The model hasn't yet been placed on the layout but will require about a scale 8' setback, a dirt floor with semi-buried rails going into the open bay and timber between the road rails to assist in turning and moving a section car or trailer in and out of the shed. Obviously some grass and weeds, as well as navy tools and appropriate 'junk', plus one or more navy figures will be needed to complete the scene.

If I was to build another such shed I'd probably try for less of a roof overhang, but that's personal preference as the overhang on QR's shed seems to have varied shed by shed, and over time. I'd also likely print the exterior iron sheeting on photo quality inkjet paper (slightly glossy normal weight paper) and cut it in individual widths so that the sheets slightly overlapped, emphasising the joints between the iron sheets and adding even more to the 3D effect. Dampening the printed sheets and letting them dry between two pieces of plastic corrugated stock could also provide an actual corrugation to the surface.

The completed model received 92 points during 'merit judging' at the 2011 NMRA Convention. It was judged as a scratch built model, not as 'kit built', which would require much more in the way of kit bashing or superdetailing to achieve a similar score. However it was gratifying to see that a fairly simple model is acceptable for merit judging. The model has since been packaged as an O scale kit and is available as a free download (3 page pdf file). Most computer printers can rescale the image when printing so you could use the kit for smaller scales as well.

Acknowledgments and References

Some of the photorealistic textures used in the model and kit (timber and corrugated iron sheeting) have been adapted from textures on a Clever Models llc CD. The Kinkara Teas poster was sourced from a Gwydir Valley Models decal set.

Additional photos are available in the rail heritage image collection (www.zelmeroz.com/albumquery/_search.php/). The fettler's shed kit (without the tea poster) and additional information on modelling with card are available on the CaneSIG (www.zelmeroz.com/CaneSIG/) and Modelling the Railways of Queensland (QldRailHeritage.com/mrac/) web sites. All drawings and photos by Lynn Zelmer. →

BELOW: The completed On30 shed with the roof attached. While there is some roof warping evident in the photo, it is not so evident at normal viewing distance (the 3' rule). Commercial signs would not be allowed on QR structures, however this structure was built for Capricorn Sugar which welcomes the additional income possible from leasing the space. Door stops, small iron stakes in the ground at the limit of the door's movement, and other details need to be added when the model is placed on the layout. However fettler's shed often did not have any interior lighting or power, so it is not necessary to model electrical connections.



ABOVE: The partly-assembled back and side walls with the completed front wall. While the front wall is assembled on heavy mat board, the side and back walls are only the thickness of two sheets of printed card. They are obviously warped in this view but will be straight once mounted in place on the base board or layout. The base in this view is a failed experiment in using a rubber-based glue (ballast glue) for fixing my coloured scenery grout.

BELOW: The shed with its walls assembled. The three dimensional effect inside the shed is the result of first assembling the interior timbers with multiple layers of card, then adding pre-stained timber uprights for all the posts except along the front wall. Once the roof is added the difference between the printed textures and the stained timber is not obvious, but the timber has the advantage of providing additional stability, helping ensure minimal warping on the walls. If building another such shed I'd probably stick to card for all posts, folding the card around a length of 1/8" square brass tubing in order to get a consistent and square assembly. The heavy mat board braces along the top of the walls keep the shed square and eliminate warping, and also provide greater gluing area for the roof.

