# 7th Heaven

Journal of the Aus7 Modellers Group Inc.
No 65

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Aus7
Modellers Group

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# Commercial News

**Trevor Hodges**

**ModelOKits**

*ModelOKits*, PO Box 379, Sydney, NSW, 1700, (02) 97073390, 0404935663, http://www.modelokits.com & sales@modelokits.com, shop open most Fridays between 10am to 1pm at Unit 4/61-71Rookwood Rd Yagoona NSW 2199, have passed on the following news:

MOK now have in stock Dapol 1:43.5 GWR and LMS home semaphore signals. The GWR signal represents a square wooden post and the LMS represents a tubular steel post and both have potential to be converted for use on a NSWR outline layout. These signals come with a servo that can be plugged into the base so the arm of the signal can be actuated and there is a light pre-installed. The pack also includes a single pole switch that is suitable for use with this signal. A review of these signals should appear in the next issue of 7th Heaven.

There are soon to be three new NSWR buildings available from May 2020:

- A NSWGR cream shed. This will be supplied with a 3D printed water tank and timber piers. Cost will be $65.
- A NSWGR A4 timber station building based on the original building at Wingham which will be supplied with a 3D printed water tank. Cost will be $129.00.
- A NSWGR timber station signal box based on the original building at Wingham. Cost will be $49.00.

It is hoped that the E flat wagon and E flat wagon with riveted water tank will be available by June.

MOK have reasonable stocks of most items, particularly NSWGR and a recent Dapol releases. Peco, Dapol and other manufacturers are shut due to the pandemic and no stock will be available from these companies out of the UK until the end of April at the earliest. Once stock is sold out it will not be available again till the situation settles somewhat and shipments can reach Australia.

# Straight Down the Line - Opinion

## by Trevor Hodges

As you'd be well aware by now we had to cancel April's Forum due to the Coronavirus outbreak. I haven't heard anyone say they didn't know about the cancellation and turned up to the venue or were unable to get a refund for accommodation bookings so I'm crossing my fingers that no one was inconvenienced to any great extent.

About three weeks before the event I was speaking to Glenn Scott of ModelOKits and he told me two or three people had mentioned to him in his shop that they were considering not attending due to the pandemic. When I raised the topic with the executive our Secretary Chris Lord replied that two people had also mentioned to him they were considering not going. After that the decision was a fairly straightforward one: in the end the executive were unanimous in making the call to cancel. I only received one phone call later on to check whether the event was cancelled after I'd I posted about it on the GroupsIO group and Facebook.

I know all of you would be aware without even being told that having to cancel the Forum is absolutely gut wrenching for myself personally and for the other members of the executive. The fact that the government essentially took the decision out of our hands a week or so after we made it doesn't really make it any more palatable. On behalf of the executive I'd like to wish every member and their families well and encourage them to stay safe so they can attend the next Forum whenever that may be.

Currently there has been no decision taken one way or the other about the next Forum. It would normally be held in the 2nd half of October, however with the situation the way it is we simply aren't in a position to provide any news about whether this will be going ahead. Perhaps things will be clearer in time for the next issue of 7th Heaven in June/ July. We'll place the notice for the AGM in that issue and I will make a venue booking and publish the date. However this may not mean the event can proceed and may need to be cancelled at short notice. Let's all keep our fingers crossed.

Speaking of GroupsIO and Facebook one interesting feature of the whole Coronavirus phenomenon was that in the two weeks following the government closing Australia's borders we had a minor "surge" in applications to join the Aus7 Modellers Group Facebook group. We normally get about one or at the very most two people a week asking to join this group but in those two weeks we had something like 8-10 people ask to join. At the time of writing the Faceboook group had 63 members and the GroupsIO group had 74. Most days there are two or three posts of photos by members on the Facebook group letting others know what members are up to on the modelling bench but there's been very little traffic recently on the GroupsIO site. Of course there are a lot of double ups where people are members of both groups, however that is not the case with the recent requests to join the Facebook group: I didn't recognize any of the new peoples' names.

I'm the last person on earth who is likely to become a booster for Facebook: I signed up extremely reluctantly and only then because I wanted The Aus7 Modellers Group to have a presence there. While I am far from impressed with some of the content that gets posted and shared on Facebook and it has not revolutionized my "online lifestyle", whatever the heck that might be, within three weeks of signing up I'd been invited to one very dear friend's 60th birthday celebration and also found out that another very close friend, who I haven't seen for something like 25 years, is battling cancer. Without this site I would have been blissfully ignorant of both.

As President of the Aus7 Modellers Group I want the group, the scale, 7th Heaven and the Forum promoted and would like to see members become actively involved in discussing and sharing the modelling they're doing through all our various avenues. If you aren't a member of one of the online groups please consider signing up. We'd all love to hear from you.


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**Advertisements**
Full Page: $125 Half Page: $65
Quarter Page: $32 Eighth: $15

Please contact the Secretary for for any membership, advertising or back issue enquiries. For matters related to the twice yearly Forum contact the President.

All advertisements must comply with the Trades Practices Act.

**Back Issues**

Issues 34 onward only available at $7.70 each plus $2.00 p&h for one or two copies, $4.00 p&h for three or more copies.




**On The Cover**
Stephen Reynolds once again shows his mastery of colour, texture and detail in his article on finishing off Virtue Motors.

# MURRAY STREET

# The 'Impossible' Layout

## Part 10 conclusion

Part 9, published in 7th Heaven Issue 63 concluded just before the running of the first train. Before this could occur there were a couple of minor problem, including a short circuit due to two facing turnouts being incorrectly wired. This was easily resolved by reversing the connections to the DCC busses. Programming the NCE Minipanel[1] did pose some difficulties, not with the programming, that was a relatively simple exercise, but some turnouts did not respond to front fascia mounted pushbuttons which are used to set up the path. These turnouts did operate correctly when switched using the accessory option on the NCE DCC cab, maybe a wiring error? After spending a reasonable amount of time checking and double checking all seemed O.K. but the problems persisted. The culprit ultimately turned out to be the switch itself, incredibly 3 out of the 12 micro push-button switches that had been installed remained open circuit even when pressed. Replacing the switches[2] solved the problem with everything finally operating correctly.

The area of the three back panels that will be behind the building flats were each painted matt black to reduce unwanted "light leakage" from the LED lighting strips[3]. I also used lengths of self-adhesive black foam tape, (actually a weather-strip) above and below these strips so that some individual floors in the building could appear illuminated at random times. The visible portions of the back panels not covered by the buildings as well as the interior of the upper "roof" sections were coated, using a small foam roller with two different shades of flat blue paint. This was applied wet on wet, in a fairly haphazard manner to hopefully represent a slightly cloudy sky.

Part 9 of this series included a photograph of the rear brick wall topped by a chain link fence. It might not have been obvious from that image but I was not entirely satisfied by the wall, the colour and quality of the self-printed brick paper was not great, so I searched for an alternative. eBay came to the rescue and indicated that a French online hobby shop had a range of brick patterns printed on A4 sheets of self-adhesive vinyl. A 1:48 scale sheet[4] was selected and a couple of weeks later the brick wall looked much more realistic.

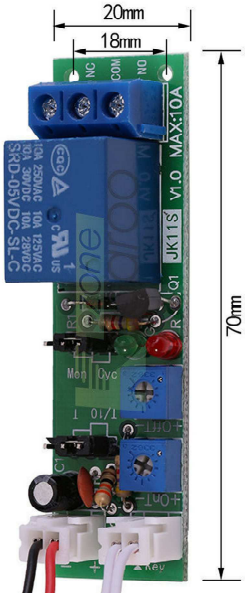
### The goal was achieved

There was a point in the journey when I wondered if the final target was achievable but it did happen and **Murray Street** is now an operable layout. This final episode commences with the operation of the first locomotive on the layout whilst still in its temporary location in the garage. 4103 was the ideal test locomotive due to its weight and power. Encouragingly, it was easily able to traverse the entire layout including the upper level of the goods shed.

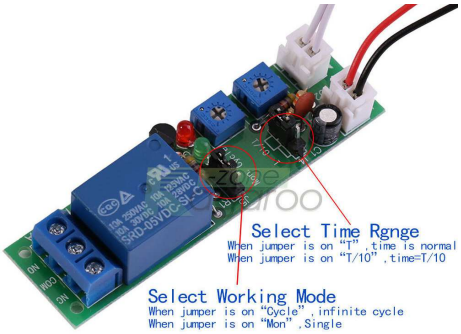
**John R B Parker**

1 mm, slightly tinted sheets of clear styrene were glued in place on the rear of the four building fronts to represent the window glazing. Maybe some of the windows should be modified to represent broken glass, not sure about that yet.

The previously installed LED lighting strips on each of the back panels were extended with two-core cables passed through an opening cut in the back panel in line with one of the multiple openings in the rear of each module's "H" shaped girder. These leads were in turn connected to individual timing modules.




An Arduino could have been used to control these individual circuits but I chose on this occasion to use a simple random timing module[5] as shown below.




These units were ultimately connected to the separate lighting bus along with the yard lights[6].

RGBW LED strips[7] were glued to the underside of the three "roof" sections. Two strips were used for each module, one included warm white LEDs and the other the clear white 'blueish" version. In a similar manner to that used for the building lighting the strips were all secured with cable ties rather than only relying on the self-adhesive tape. The strips were interconnected with 5 pin plug and sockets and are subsequently operated by the remote control which was supplied as part of the LED package. This will permit a variation in both the colour and intensity of the RGB LEDs and the separate white LEDs included on the strips.

Four Yard lights were added to the layout, two on each of both module one and two. These are not an exact replica of the type installed at Darling Harbour but they were readily available at an affordable price and they do look the part. The also add a little more "business" to the overall scene. As purchased the lights come complete with a threaded section approximately 15mm in length which could be mounted directly to 6-9 mm baseboards and secured with the supplied nut. This method of mounting would not suit my 50 mm foam road base so scale 3 x 2 foot scale "concrete" bases were fabricated from 2 mm styrene to which the lights were attached. This provided a larger footprint for the light which was ultimately secured with 4 dress-maker pins and glue. The lights were supplied with four fine wires which permit connection to the two surface mount LEDs. 5 x 620 ohm resistors were supplied with the four lights but I put them aside and added the ubiquitous 1K ohm resistor, to each of the black "cathode" leads and also connected the two red "anode" wires together before extending both with silicone hook-up wire.


Module One
AUSTRALIAN MERCANTILE L & F C°


Module Two
LTD
JOHN LYSAGHT (AUST.) LTD


Module Three
WOOL STORE
GOLDSBROUGH MORT
COMPANY LIMITED
WOOL STORE
PITT SON & BADGERY LTD


## Where do you get it?

**1. NCE Minipanel**
https://modelokits.com/

**2. Mini Momentary Push Button Switch Red**
EBay

**3. 5050 5M LED strips**
EBay

**4. O gauge (1:48 scale) red brick self-adhesive vinyl - A4 sheet (297 x 210 mm)**
EBay

**5. DC 12V Infinite Cycle Delay Timer Relay ON-OFF Switch Adjustable 0 ~ 120 Minutes**
EBay

**6. 4 x O Scale LED yard light Model train street station lamp post #702BR**
EBay

**7. 5050 5M RGBW LED Strips with controller**
EBay

What next? At the time of writing the layout is still in its temporary location in the garage. Some further reorganisation of my study will be required before Murray Street can be installed in its ultimate location. It is expected that the final relocation will have been achieved by the time this appears in print.

As many other modellers have also experienced life sometimes does get in the way of our hobby and as a consequence earlier planned priorities require rearranging. I even managed to assemble and complete a number of other models whilst the construction of Murray Street was underway. The ACM seen in earlier photograph was one such model. This particular kit had been sitting, unopened in a cupboard along with many other boxed “still to be started” kits for far too long.

This has been a fascinating journey, I really enjoyed building this “Impossible Layout” and in particular acquiring a number of new skills, including understanding the value of the 3D printer. I trust you also enjoyed the journey and were encouraged enough to continue or start building your own “masterpiece”.

John R B Parker

# A Few FO'S for Outdoors


by R. Comerford

Having recently acquired three sets of parts to assist in making FO's or similar coaches I set about to finish them to run on my outdoor layout. The parts are from the output of Ron Fox, made some years ago with fibreglass bodies, wood roof and Fleet bogies with finescale wheels. One of the coaches had a basic assembly and was painted in cream.

After stripping the paint it was ready for re-painting and finishing in company with the others. This coach came with an underframe and while the queenpost arrangement was a bit small I decided to leave it as it came. Outdoors such inaccuracies are hardly noticed when running.

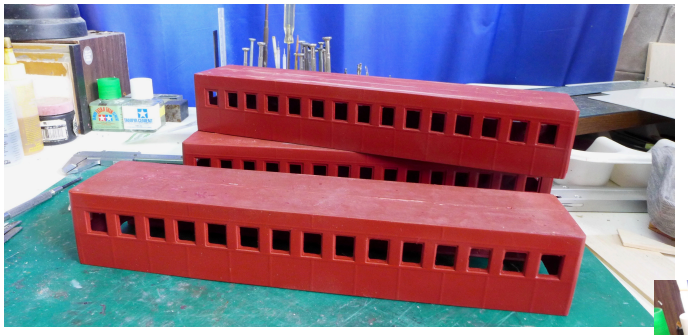
The other two needed underframes and these were made from a combination of plywood and pop sticks. A third was made at the same time for a scratchbuilt coach to be made to add to the set in the future. Fishing line is used for the rodding on two and tie wire the other. I think I am happiest with the fishing line. Underframe details were made from pieces of balsa, cardboard, paper and wooden dowel. To attach the underframes to the bodies some pieces of balsa were epoxied into the bodies. 3mm nuts and bolts were used to hold them together and they were also used to attach the bogies.

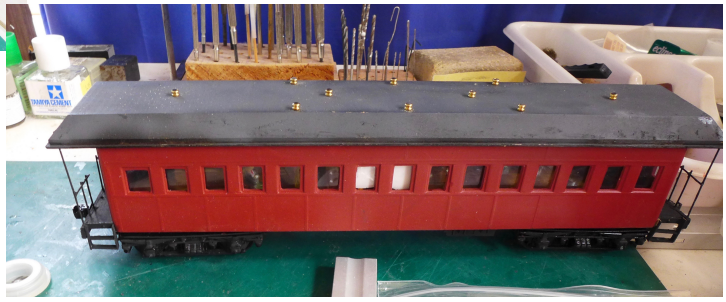
The windows were first opened out with a suitable drill bit and finished with files. Windows are clear plastic glued to the body with Selleys waterbased Quikgrip. Handrails and posts are made from tie wire. A jig made from ply and nails was used to assist in assembling the end posts. Ventilators are made from guitar string beads and track nails.

The bodies were painted with the following:  AK primer grey, Vallejo Cavalry Brown, Satin Varnish, Vallejo Blacks, Tamiya German grey. I made my lining and lettering using computer printouts and Polly S Reefer Yellow.  I now have nice decals from Teditor so an upgrade is in the works.

The photos should be self explanatory but any questions can be answered via Facebook.

Cheers
Bob





# A SLIGHT DIVERSION

Peter Krause

About 12 years ago I was approached by a visitor at the Brisbane Model Train Show and asked if I knew of anyone who would be interested in purchasing an O Scale Queensland Rail layout. When he explained the origins of the layout I decided I would like to have a look for myself. I visited his home about a week later and on being told the $150 asking price I bought it straight away with absolutely no idea as to what I was going to do with it. I took it home and stored it in the garage where my ute was normally parked and forgot about it for a few years.

A few years later I had a rush of blood to the head and built two 2150 X 800 modules to install the layout on and then promptly put it back in the garage and forgot about it again. I must admit I did not give much thought to the design of the modules and they turned out to be rather cumbersome and difficult to manoeuvre on my own.

A later spurt of enthusiasm resulted in me deciding to make the layout into a version of the Samford station on the long-closed railway line to Dayboro, Samford being the closest town to where I was living at the time. I proceeded to re-arrange the trackwork to produce a reasonable representation of the Samford station precinct. However, I felt something was missing and, on discussing it with a fellow modeller who also lived in the area, at his suggestion a third 2150 X 800 module was added which included a river crossing and a tunnel. The end result was a layout representing about 8 km of the prototype compressed into a 6450 X 800 layout featuring all the main features of the line from the Main Street Samford level crossing to Yugar tunnel.

I was able to get Ian Fainges to paint the backdrop prior to my circumstances changing and having to relocate. Nothing further happened for another two years.

Once settled into my new home (refer 7th Heaven # 61) I decided to get the Samford layout completed with the intention of exhibiting it. To set myself a deadline I arranged to exhibit it at the Strathpine Model Train Show in August 2019. A couple of working bees with friends and many hours by myself and I was able to get it ready in time for Strathpine. The reason that I picked Strathpine is that it happens to be located in the same Local Government Region as Samford.

Subsequently I was approached by the Samford Museum to exhibit the layout at their open day on Australia Day 2020. As the museum is located on the site of the old railway station precinct, a lot of fun was had on the day showing the visitors where on the layout they were currently standing and where certain current day features were located.

Locomotives and rollingstock were mostly produced by Ron Fox with a few Quivic Models and a couple of “kit bashes”.

The layout is currently back in limbo but I have been invited to apply to exhibit it at Strathpine again this year.

*The layout set up ready at the Strathpine Model Train Show.*

*The layout as originally purchased.*

*A passenger train from Dayboro approaching the Samford station. The locomotive is a BB181/4 and the two coaches are QR suburban cars all originally produced by Ron Fox.*

*The Farmers Social Hall and Samford Garage both of which have historical significance in the Samford Region and I was able to include in the layout.*


*The layout and myself at the Samford Museum. The sign provides visitors with background details relating to the layout.*

*A Brisbane bound passenger train at the station.*

# *Building the Hunslet - Pt. 1 Or Don't Burn the Fingers*

by Lionel Pascoe

Several years ago I wanted something to build to break me into building steam engines, especially with coupled wheels as building a diesel in white metal and epoxy is one thing but my next item is a steam engine. While visiting one of the hobby shops and viewing some second hand items my attention was drawn- to an 0-6-0 DM etched brass kit, basically a diesel mechanical unit with side rods and jackshaft i.e.., coupled wheels. I had a quick look inside and there was a note on the outside saying no instructions. Yep, no instructions on the inside of the box! How hard could it be to put together a little diesel?

So I brought it and at home searched for Judith Edge kits on the web and luckily it was still on offer, so I sent off an email and received a reply with an attachment. Not as fancy as I was used to, just 5 pages, one page for the parts list, 3 pages of instructions and a final page drawing showing body outline with the location of motor and gearbox. The instructions gave an outline of the life of the little engine. This was Hunslets first diesel shunter built in 1932. Guess what – It's still running around at the Middleton Railway in England and you can see it on the web pulling tourists around.

Well, basically I put in in the cupboard until a few years ago while I was looking for something else and came across it. Not what I was looking for but I thought it's time so started to read the article again, out came the box of parts and I started to see how it went together, rereading it several times trying to put together a picture in my mind and questions of how do you do that. How does that go and scratching the head? I pulled out some articles on building brass engines and they all warned about burning fingers and heat transfer, plus quartering.

Another main point was building things in stages and guess what, the instructions recommend breaking it down into 4 main stages (plus some sub assemblies), being the main frame, footplate, cab and engine hood. Lastly, when all done - put it together. What about painting

Photo 1 – the 4 main sub assemblies.

Photo 2 – sub assemblies sitting together

Footplate.
As the kit is an older one it does not have etched grooves allowing the folding of the valance over on the footplate . These are seperate parts and have to be attached by– holding in place and soldering.
Now how do we hold a pile of parts on one another and get straight sides as on the valance when you can't hold them with anything metal because it soaks up too much heat or your fingers?

I thought hard and tried several methods with mixed results e.g. wavy sides, burnt fingers to being aware that a lot of clamping actually uses metal clamps. I finally came up with some very old and cheap clamps as shown.

The humble wooden peg can be sawn and cut and glued to clamp and support items leaving the fingers and hands to actually use the soldering iron. Photo 3 shows the simplest method, using a mini hacksaw to cut a groove into the peg as close a thickness to the valance material so you can hold the valance on the footplate, look - no hands or metal.

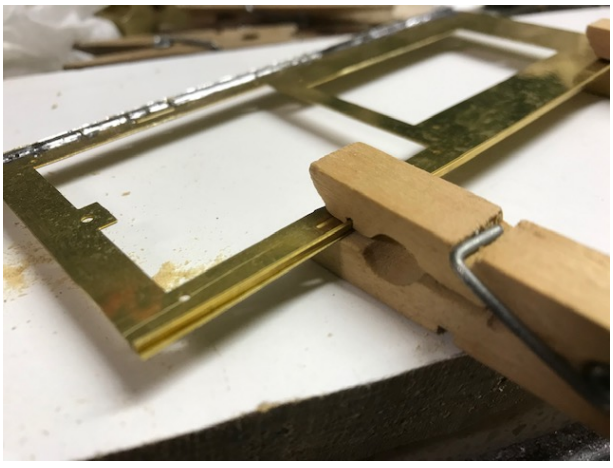


Photo 3 – holding the valance no fingers

Photos 4 shows two clamps holding the valance to the correct width and then aligning the valance to be straight and in line along the edge then apply the other pegs to hold it in place and apply some flux and some solder as you can see. Not much solder is required.

Photo 4 – straight and parallel

Sometimes you need to hold the alignment peg in place by using a second one to hold the first peg in place, by holding the top of the footplate so it does not move. The buffer plate can be held against the main frame and the footplate front for soldering, Don't have enough pegs? Then borrow a couple from the peg bag or buy your own packet and have a couple of spares as you'll need them later.

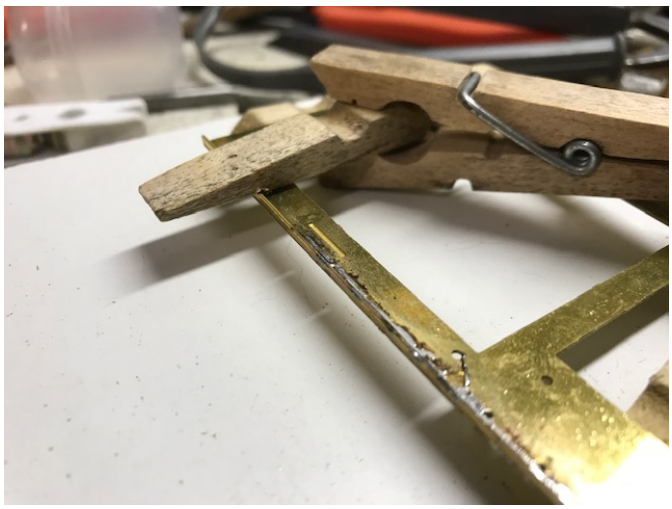


Photo 5 - the double peg hold

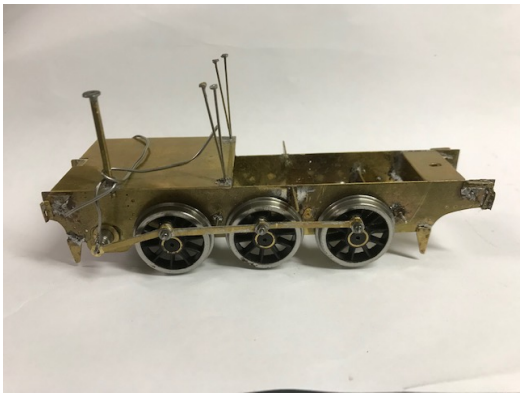
In photo 6 before I soldered it on I had to knock in the rivet detail as shown in photo 2 and on the outline drawing. I used a small panel pin and small hammer to work out the amount of swing on a scrap piece of sheet to test before doing it on the main one – as if wrong just find another scrap piece. Practice before doing.
Did you notice that the cab floor is raised and if you have built the footplate that it's just supposed to just slide down over this! If it did – Congratulations.

Photo 6 – holding the buffer in place.

SideRods and Jackshaft Weights.
Here's photo 7 showing the rods and weights removed and cleaned up and soldered together. Bamboo skewers can be used in the holes to keep alignment.

Photo 7 – rods and weights soldered.

The Cab.
This photo shows our chassis and footplate together and clearly shows the cab raised floor. The cab base plate will hold the engine hood and also showing is the nuts soldered on for holding the 4 assemblies together and inside the cab is the remainder of the raised floor surround soldered into the cabs lower sides. When you lower the cab onto the footplate the floor should slip in and around the lower half floor and the bolt holes should align. Again if they do; great work in building this far. Still a lot more work to do but I'm getting there.
To continue in Part 2.



# New South Wales Federation Dunny - An Exercise in CAD Solid Modelling

Lee E J Styger

A funny thing happened in the way to the forum; we didn't have one on account of COVID-19. My plan had been to do a live session on CAD solid modelling, but this got put back and then the call came for articles for 7th Heaven and so I converted my live session into a step-by-step guide.

Why CAD solid modelling? Simply, there is a heap of phenomenal technology available to the modeller should we choose to use it. The problem is however, that when it comes to things like CNC machining or 3D printing, many of us don't get good results or worse, don't get anything at all, because we lack knowledge around the driver of these technologies i.e. CAD. I don't want to get into the debate about the use of CAD not being real model making and so forth. CAD is a tool and like so many tools to choose from, there are some good, some bad and some downright ugly ones out there. Some are "enterprise wide" systems and will cost more than your car, others are free, and often you get what you pay for with these, but, there are some very good, single seat, systems, that now have more functionality than some of the top end of town systems I used professionally back in the day. I use Rhinoceros. It is affordable, they offer three months free trial, and it works very well indeed. My only connection with this software is I use it for my model making and as a hobby.

If you are thinking of accessing some of those advanced manufacturing technologies such as 3D printing for your modelling, then you are going to have to develop skills in CAD solid modelling, which is different to CAD for two dimensional drawing. I think the change from 2D to 3D is often the hardest thing for many of us, especially if we have been used to 2D drafting software, and try to use the same techniques to "3D" the model.

The following sequence of screen shots provides a pictorial with some narrative around how the NSW Federation Dunny went together using basic solid modelling commands. The modelling time was about two hours, the writing up and sorting the screen shots took the rest of the day! The model is based on a prototype in my back garden and is similar to so many you can see from the trains on the South Coast line. It makes a fitting choice for my first ever Australian prototype model, since I used to be in sanitary many years ago and it was working in that industry where I first used 3D CAD albeit now some 30 years ago.

Hopefully this sequence will provide some inspiration and demonstrate how straight forward CAD solid modelling can be, if a few simple rules are followed.

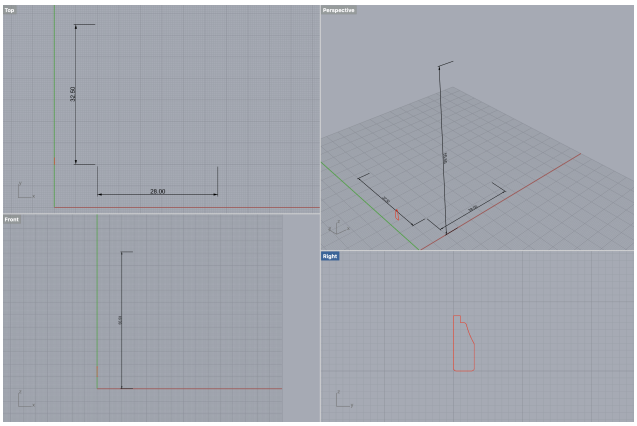


*Figure 1.0 - Where it All Begins. The screen is divided into four views for 3D modelling. The major extrema measurements of the dunny are shown (I conduct my CAD modelling in 7mm scale not 1:1 and convert. I find the conversion takes time and much of the fine detail needs work to get it all to stick together). In the "right" view, is a small red profile (currently in 2D) of a plank for the wall. There is a small 0.5mm upright to the top of the plank profile, this is used later in the construction to ensure a robust Boolean join is created. Often the mathematics of the system does not like flat butt joints, so poking a bit into another bit ensures robust mathematical calculations and a pure solid model that can be converted to 3D printing for example. Apart from the profile, it's important to remember that we are solid modelling from the beginning so there is no need to have a "flat pattern array" or 2D drawing of the model for later filling in with surfaces and the like.*

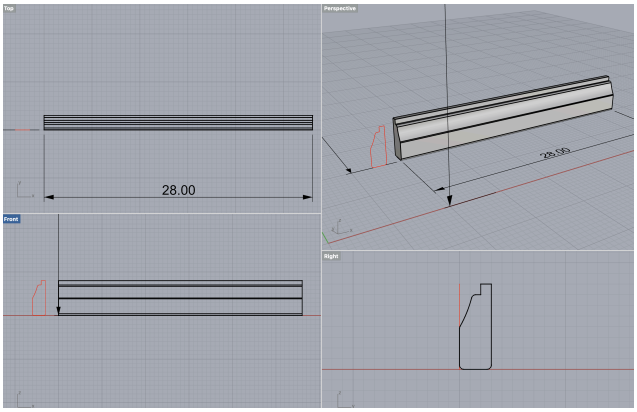



*Figure 2.0 - This is the first "solid extrusion" of a plank from the red profile noted above in Figure 1.0. The profile has also been turned 90deg, for the longer walls of the dunny, but as it turned out, I ended up just joining two shorter planks together.*

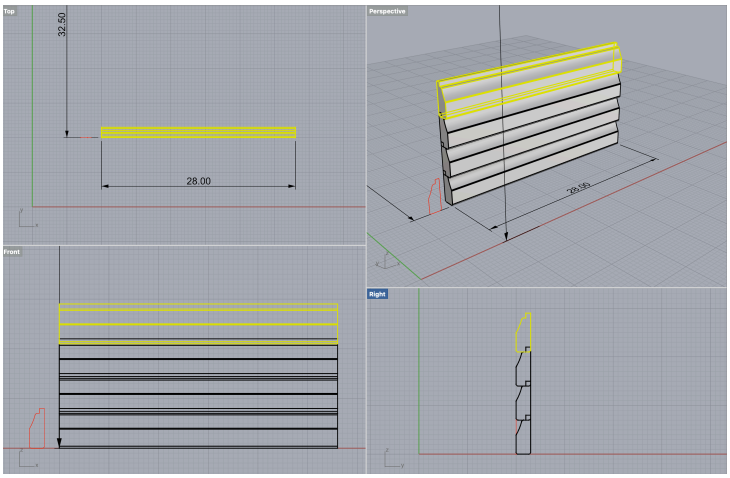



*Figure 3.0 - The first plank is now copied, in a similar manner to copying in a word document, and pasted in place. Repeating this simple command sequence, soon builds the first wall.*

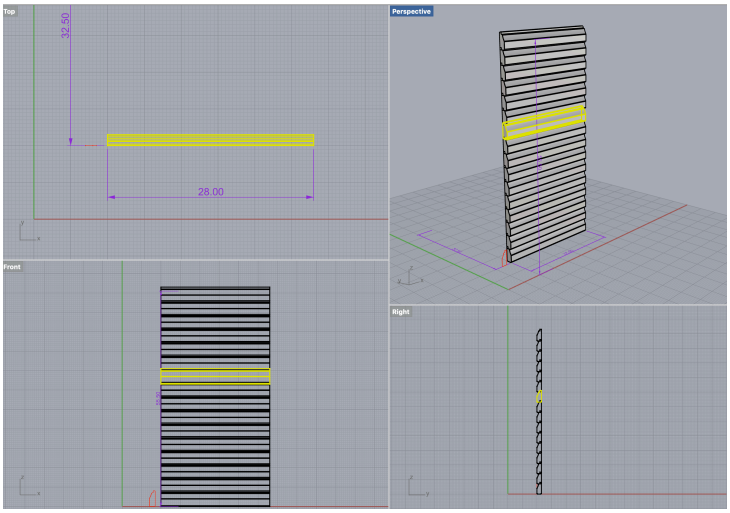



*Figure 4.0 - This is an illustration of the first completed wall. At this stage, all of the planks are still individual items. They will be Boolean (ed?) together later in the modelling process. Note how the 0.5mm upright (discussed above in Figure 1.0) now protrudes into the plank above ensuring robust mathematical calculations later in the process.*

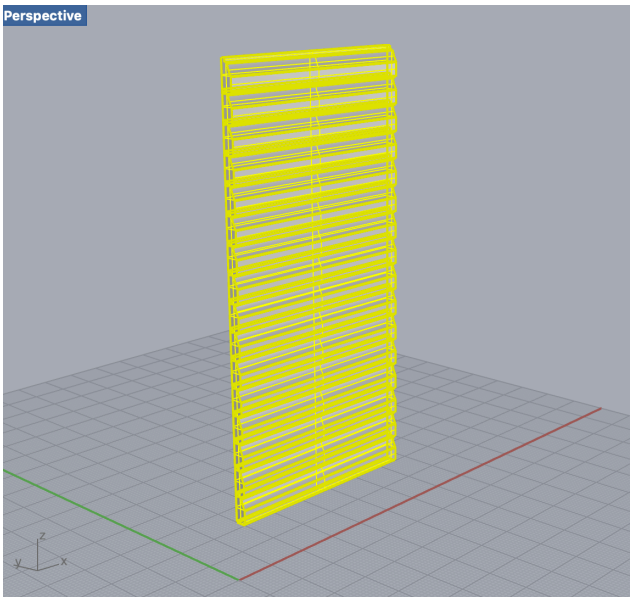



*Figure 5.0 - All of the planks have now been Boolean joined together to form single, solid, CAD model of the dunnie wall.*

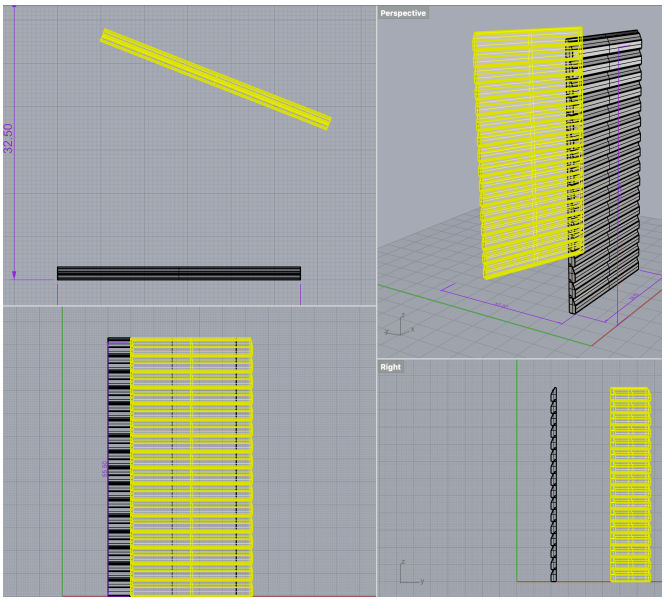



*Figure 6.0 - The first completed wall is now "mirrored" to make the second wall. This image shows the process part of the way through.*

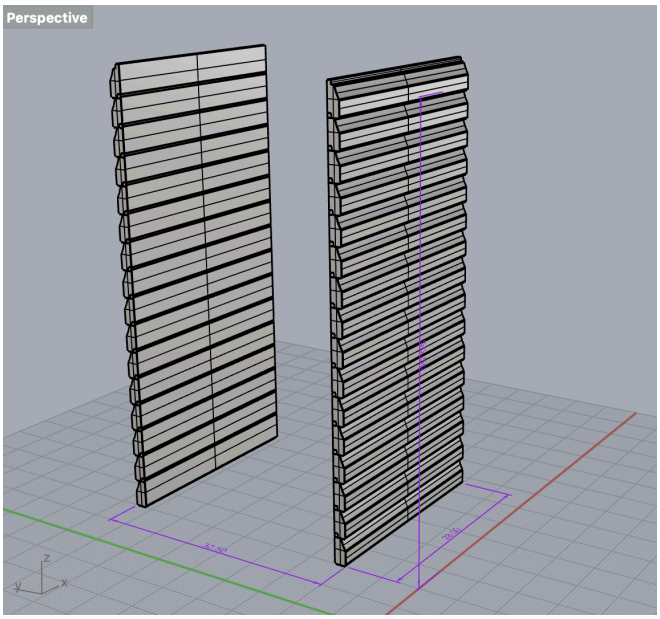
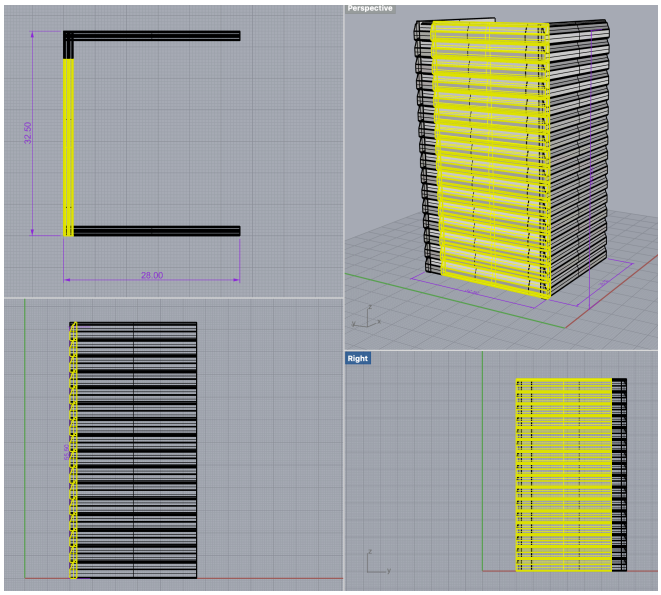



*Figure 8.0 - As noted in Figure 7.0, the longer walls of the dunny could have been made by extruding them to size using the red profile. However, since we already have a prefabricated side wall, it was a simple matter to copy it, then rotate it and finally copy it again to create two walls. In point of fact, it actually took less time to do than it did to write this paragraph. These walls were then moved into position and finally Boolean joined to make a single longer wall.*

*Figure 7.0 - Is an illustration of the two completed, mirrored, walls. Currently, both walls are seperate solid models and will only become one as the build process progresses. From time to time, it will be noted that entity colours change, this is because they are being swapped between different layers. Think of layers as a series of clear sheets that can be turned on and off to help the modelling process.*



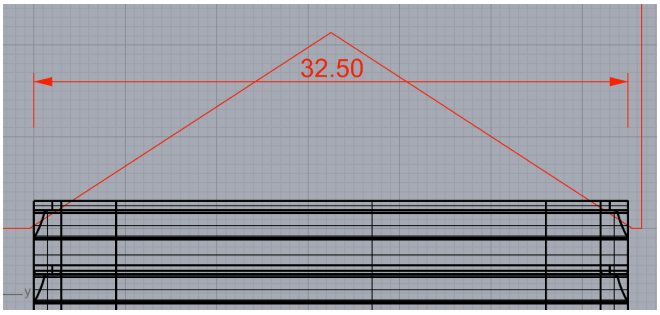
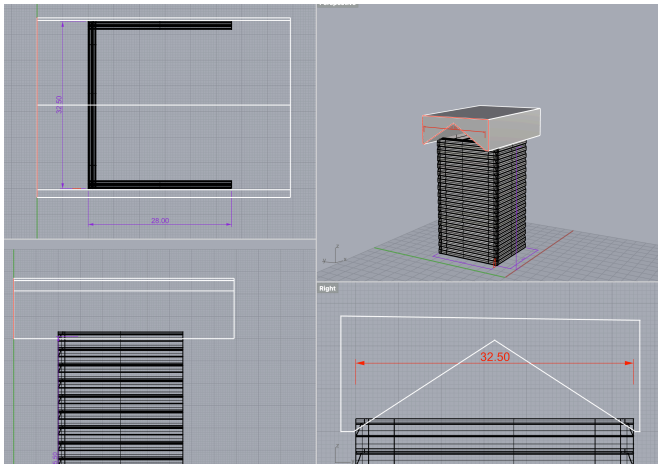




*Figure 10.0 - The roof profile is extruded to form a solid model in the same way the plank was originally.*

*Figure 9.0 - This is an illustration of a new profile that will be used to profile the roof. Atypically it appears to be going the wrong way, with more above the roof profile than below. This is because it will be used to remove entities - think of it as a mould - and a new concept compared to physical model making.*



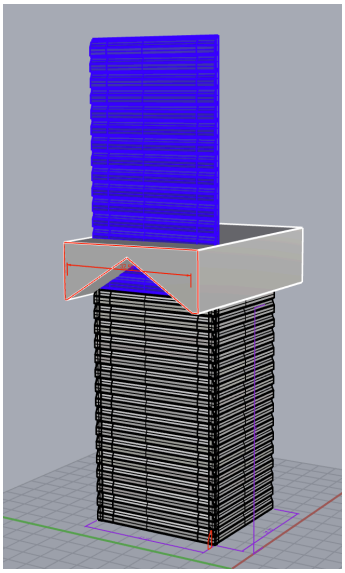



*Figure 11.0 - A second copy of the longer wall is now positioned above the first providing plenty of "spare" for the apex area.*

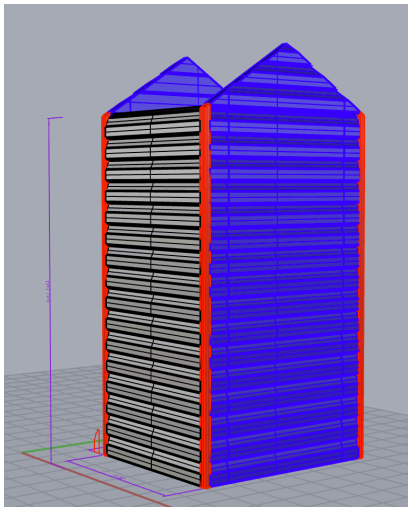


*Figure 12.0 - The tall wall was Boolean joined and mirrored to make the two walls, The extruded solid roof profile, that was opposite to the actual roof, was then used to Boolean difference (i.e. take away), leaving both walls with the desired profile.*

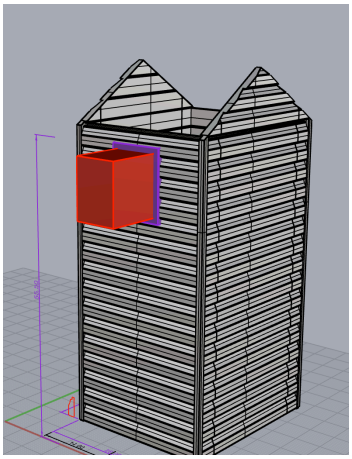


*Figure 13.0 - Two solid cube primitives have been added to the model. The purple one will become the window frame (Boolean join) and the red one will punch though (Boolean difference) both the purple frame and the walls to create the opening.*

*Figure 14.0 - The dunny is coming together well. The window is now complete with the bars that were created using some more primitive solids. The door and frame were created using the same commands for the walls and the window frame. The door handle, is a primitive sphere and cube.*

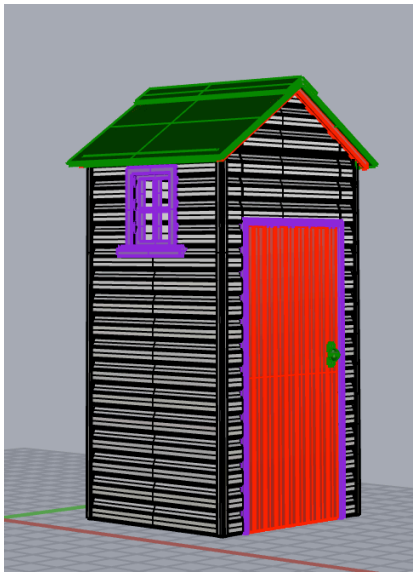


*Figure 15.0 - This is the final dunny model, just before it was all joined together. The sheet metal roof was another extrusion.*

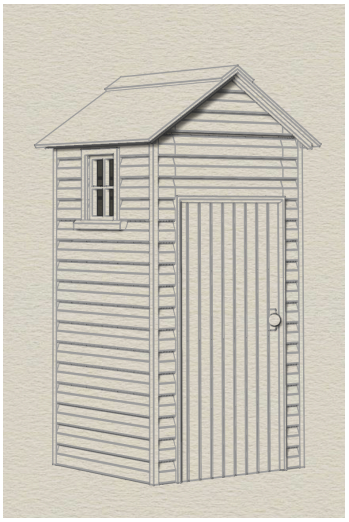


*Figure 16.0 - The CAD system enables many different kinds of rendering of the models on screen. At first I thought it was a bit of a gimmick, but more recently I have been using it to help establish if the virtual model has the same essence of the prototype. In this case it looks like the one at the bottom of my garden.*

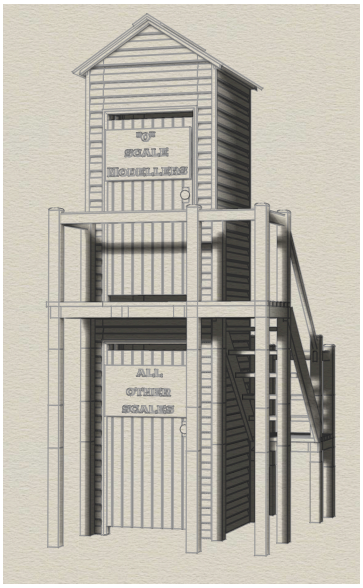


*Figure 17-0 - The Bonus Shot. The two level dunny was just a bit of fun really, but there is a more serious side. Once you have the basic model, and if you plan for it, modifications and variations on a theme are very simple to do in CAD resulting in significant modelling opportunity. I am at a stage where I make variants of wagons from the outset. This means that no two wagons will ever be the same and that's before the paint, numbering and loads. Funny thing is that when people know this, they begin to go looking for the often vey subtle differences between seemingly identical wagons and it drives them crazy!*

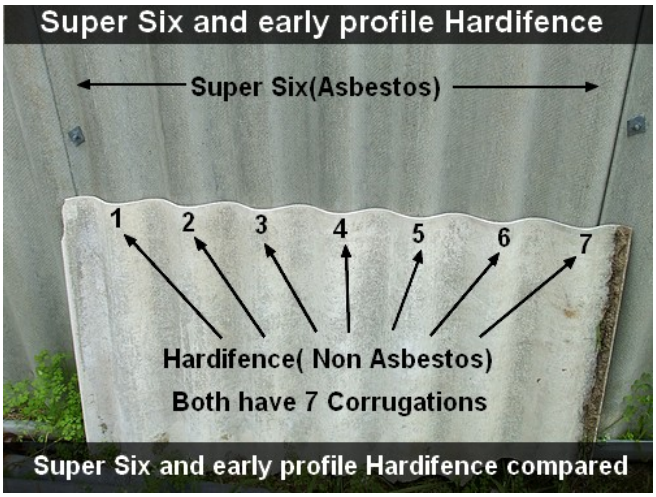
# VIRTUE MOTORS - PART THREE

## ASBESTOS CEMENT SHEET ROOFING.

STEPHEN REYNOLDS


The existing covering on the workshop roof is the third to now grace the building. The first was corrugated aluminium sheets but once finished it did not appear prototypical, with an excessive gap of the overlapping joint.

I wanted something different for my second attempt and decided to try to achieve the look of asbestos sheeting but more to the point the look of Super Six that was used on the roofs of industrial buildings from the 40`s on.

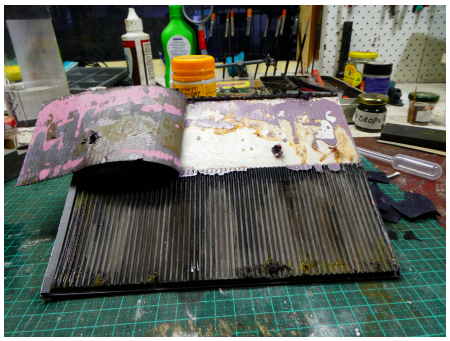



A standard sheet of Super Six had a width of 40 inches. When we measure the corrugations in 7mm we find that the corrugated cardboard comes very close to this.

I had long notice corrugated cardboard and thought this may have possibilities. One source of it is your local $2.00/Reject shop. Here it comes in packs of ten, A4 size for a few dollars. The only trouble is that it is brightly coloured.

This is soon taken care of by (you guessed it) spraying it with cheap grey undercoat which is the base colour we want anyway for our weathering.

While I was happy with the appearance of the cardboard this attempt suffered the same problem as did the original corrugated iron; unprototypical overlapping gap, where the top sheet overlaps the bottom sheet. I could see an easy way around this but it meant starting over again.



I removed the second existing cardboard sheet that had been attached with PVA glue by applying methylated spirits.

Making the cardboard moist with the methylated spirits but not soaking it, so as to preserve the integrity of the cardboard roof

Removing PVA from any wooden joint or situations like this works well using methylates spirits. Just apply with an eye dropper, cover the area and within minutes both sides will start to become free.

You can start cleaning the PVA away once both surfaces have become separated. Then remove excess PVA (which now has become jelly) by scraping and sanding until you have a fresh clean surface ready to be reglued. I then went on and recovered the surface with heavy brown paper to revitalize the original cardboard surface.

Starting the third attempt with the corrugated cardboard that had now been sprayed with the gray primer, the area was measured; the width and the length were obtained. The length of the roof worked out at almost two equal parts. I then peeled off the first few layers of card, about 10 mm wide, from the back of the sheet that would become the top overlapping sheet. The bottom sheet was glued to the roof base then the top sheet with its overlapping cut-out in position. This produce a much more appealing overlap with minimum gap.

Now the roof with its new cladding was finished it was time to weathered it. To give the appearance of individual 4 foot sheets, I lightly painted with two different acrylic paints in lighter grey tones. Once dry I gave the whole roof two coats of a mixture of Indian ink and rubbing alcohol followed by a liberal covering of ash from my fireplace that was then brushed off to remove the excess and left a nice dusty texture.

To finish off a little urban vegetation was added where the various green hues add a pleasing contrast to the dull sober tones of the blacks and greys.

Student's acrylic tube water paint in various colours, yellow, dark green, lighter green along with dabs of concrete were all used to recreate the accumulation of moss and mould.

After a light coat of PVA fine flock was sprinkled over areas where vegetation may grow in moist conditions. A few small of pieces of wood, some dried leaves and an old tyre all add texture and atmosphere to the project.

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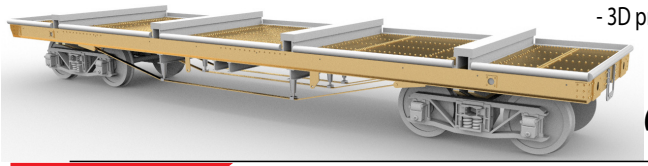

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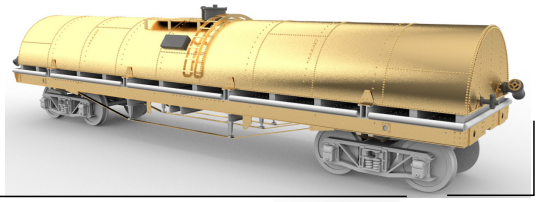

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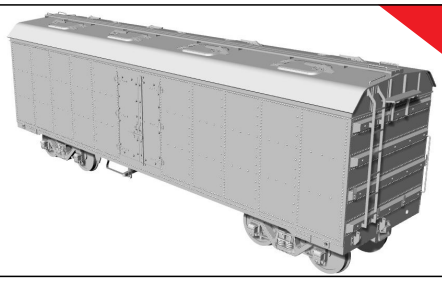

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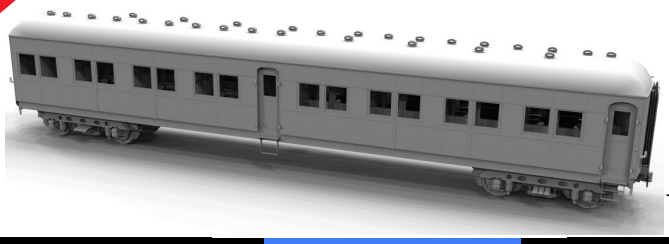

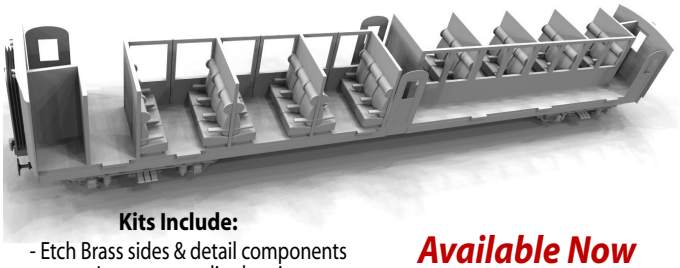

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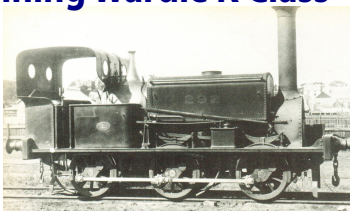

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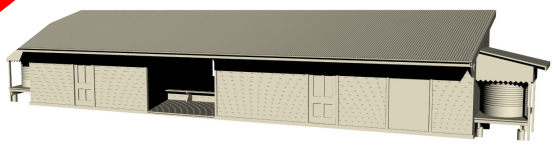

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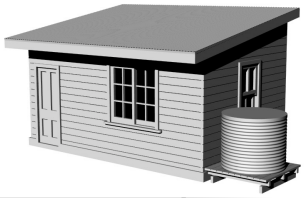

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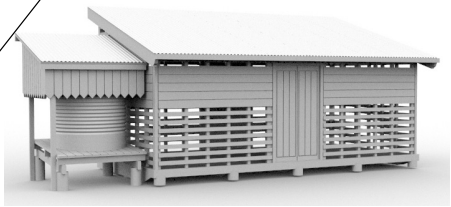

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