

Preface

Adding to the range of silo models from Keiran Ryan Models, this kit is the bigger brother of the S008, the S016 Acrylic Silo Kits. This kit has a slightly longer footprint than the S016 Kit and has the addition of a larger bin on the left hand end of and the right hand end of the silo.

This kit is an acrylic laser cut kit and is consists of laser cut sections of 1.5mm clear acrylic that are tabbed and glued in place to form the basic structure which the modeller can then build upon.

There is no cutting or snapping required, and the modeller obtains a much more completed structure that is more consistent, squarer, and easier to work with. Thank you for you support in purchasing this kit, and I hope to be able to provide more kits of this type, not just for silos, but for other structures associated with model railways. (Any ideas would be appreciated).

These instructions, as you are now aware, are on a CD. The information on this CD is Copyright protected, as are the photos. The modeller can certainly use the information for his or her own purpose, but they are forbidden to use the material to onsell or trade or sell without the permission of the author of the CD. There are links in this document that will redirect you to the instructions in various formats, depending on your preference. There are also other plans and photos that can be accessed on the CD, which make this CD a one-stop shop, and great reference source. The basic instructions are also available on the Keiran Ryan Models web site if required.

Introduction to this Kit

Disclaimer

This silo is NOT a complete kit.

It is an easy starter kit for modellers who prefer to have a model silo for their layout, with the detail work being assisted by using the original article in the Australian Model Railway Magazine Issue 165 in December 1990 through to 167 in April 1991. as well as Issue 170 October 1991

The material used in the construction of this kit is 1.5mm clear acrylic and can be very brittle. You will need to be very careful with the material in the process of construction, and to also be careful with thin sections of the material, as they can easily be broken. If you do break a piece, it will glue back together using Dichloromethane.

The best way to apply this glue is to place the pieces that require bonding, together, hold them firmly and run the glue into the joint allowing capillary action to secure the parts. Keep them held for 10 seconds and then set aside to dry.

MEK will NOT bond this material.

Health Warning

The following is a warning for using **Dichloromethane:**

Principal hazards

- *** Dichloromethane is harmful if you swallow or inhale it.
- *** It may act as a narcotic, so inhaling it will make you feel unwell.
- *** Like many small hydrocarbons that contain halogen atoms, dichloromethane is a suspected carcinogen. It is unlikely to be strongly carcinogenic, but it is important to reduce your exposure to the lowest level possible.

Safe handling

Wear safety glasses. Work in a well-ventilated area. Avoid repeated or long-lasting exposure.

Emergency

Eye contact: Immediately flush the eye with water. If irritation persists, call for medical help.

Skin contact: Wash off with soap and water.

If swallowed: Call for medical help.

Disposal

Store for later disposal as chlorinated waste solvent.

Protective equipment

Safety glasses.

KRM S01 HO S024 Acrylic Silo Kit

The parts in this kit make up into sub-assemblies as per the bags that they were packed in. Parts have been checked when packed, but please check all parts in the bags with the check list provided, and if any parts are missing let me know and I will have them replaced.

- > The Base
- > The Sub-Frame
- > The Cupola
- ➤ The Bin Roof
- ➤ The Large Bin Roof
- > The Annex
- > The Spoil Bin
- ➤ The Out loading Platform
- > The Front Step
- ➤ Rear Road Support
- Rear Road
- ➤ Please Note that on each of the instruction slides, the parts required are displayed in purple on the top left or right to assist you in progress of this kit

Instructions

- ➤ Please ensure that you read the instructions 3 times before you make a start on this kit ------ (I Know----I hate reading them also, but it helps with getting the kit right).
- ➤ Keiran Ryan Models does have a breakages policy, which states, that if you break a part in this kit, it will be replaced once, but only once, so be very careful.
- This is a simple step by step process.
- The parts in purple are the new parts to be fitted.
- The parts in grey are the parts already fitted.
- ➤ Identify parts before committing them to the location, remove the paper/plastic backing before fitting.

▶DON'T force the parts, as they are brittle and WILL BREAK if forced.

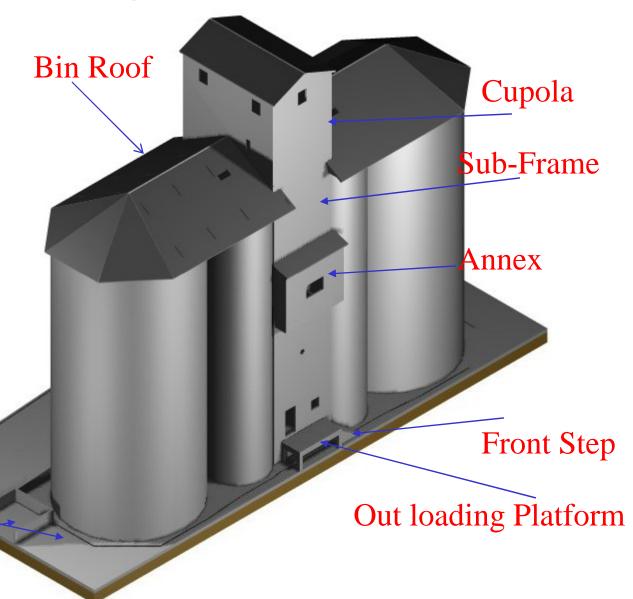
- The acrylic glue that has been suggested, is used by placing the parts together and then running the glue between the parts, using capillary action to bond the parts together, and holding them for 10-20 seconds.
- ➤ If you find that the tabs are tight into the slots, just file the slots and the tabs until they are a better fit.
- DON'T glue parts until all parts of the sub-assembly are in place, and ensure that they are the correct part, and in the correct orientation.
- There are parts that will need to be clad in corrugated iron (e.g. Campbell's aluminum) and other parts that will need to be painted. The acrylic takes acrylic paint very easily, but do use an undercoat.
- ➤ Have fun, as this kit is very easy to build. And I would appreciate your feedback!!!!!

The Outcome

This drawing represents what we expect to achieve when this kit is completed. Naturally the silo has to be finished with fillers, paint, cladding and other parts not included with this kit. And the modeller still requires the parts to build a wagon shed; plans to assist you in this task are included on this CD. KRM S04 (Etched Brass Parts) and KRM S05 (Windows and Doors) are available to allow the complete silo to be realized

Base

Spoil Bin



Are

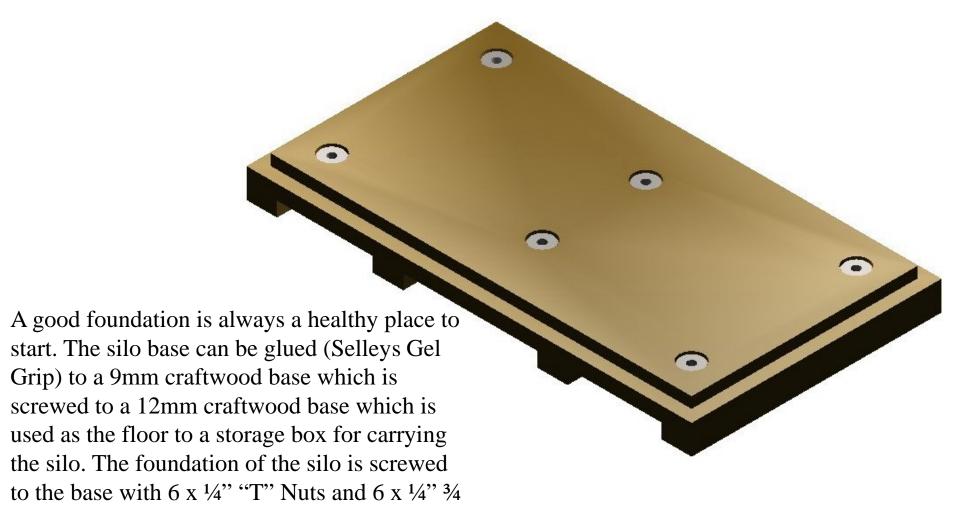
You

Ready

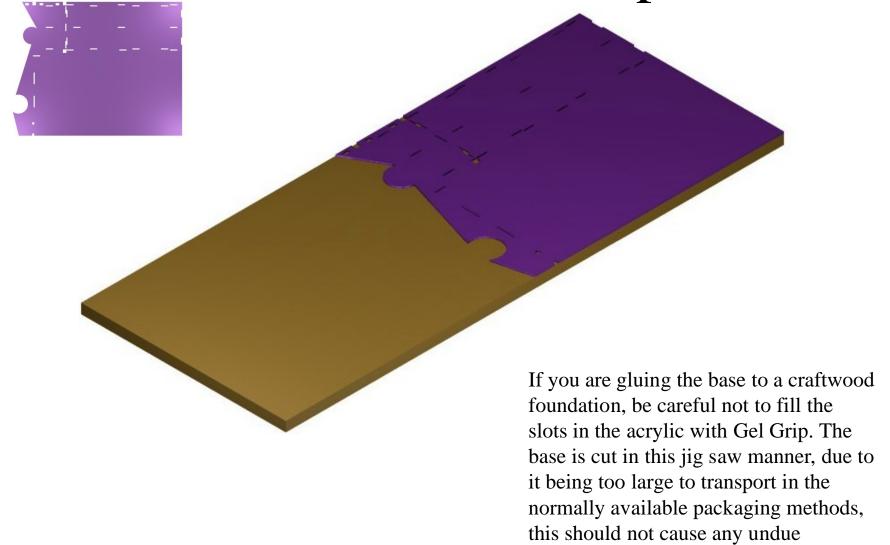
To

Model?????

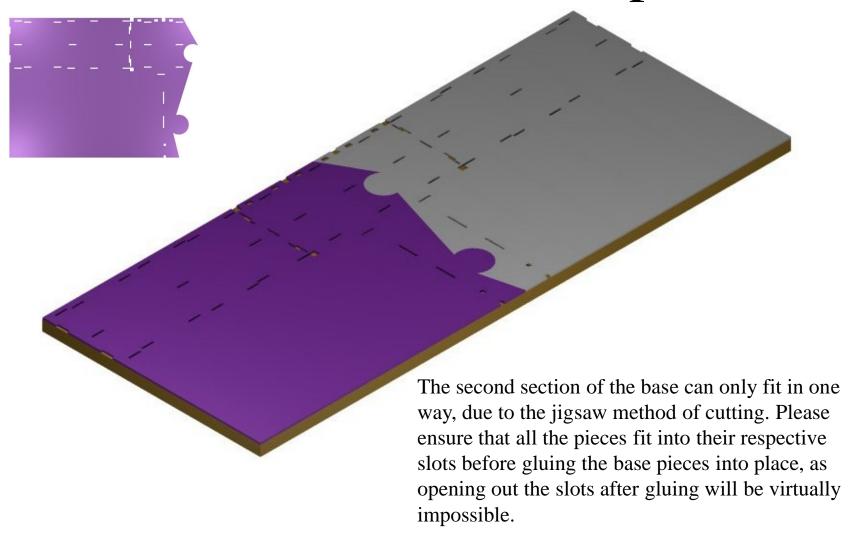
A Good Foundation



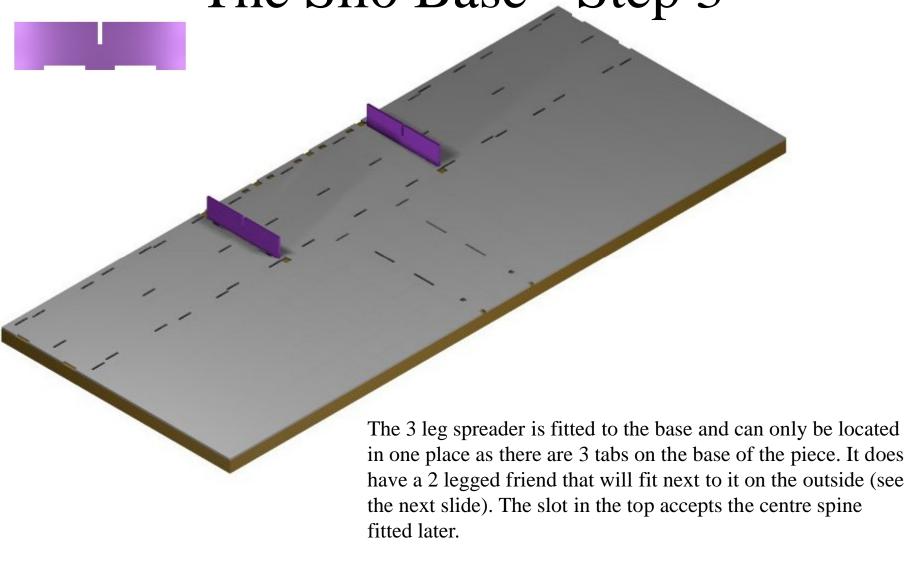
brass cheese head screws. The 9mm bases with $\frac{1}{4}$ " "T" Nuts fitted, are available from K R M for \$30.00 + postage, or simply make your own to the template of the Silo Base .

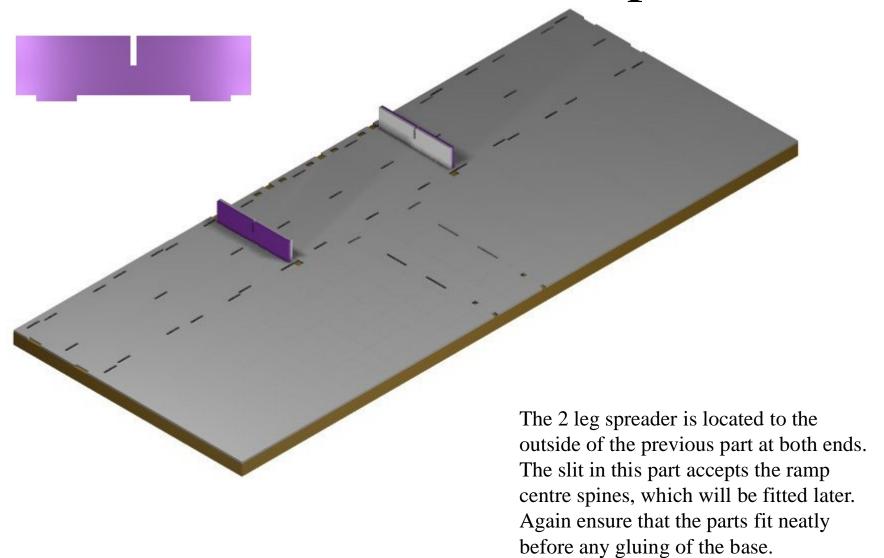


problems.

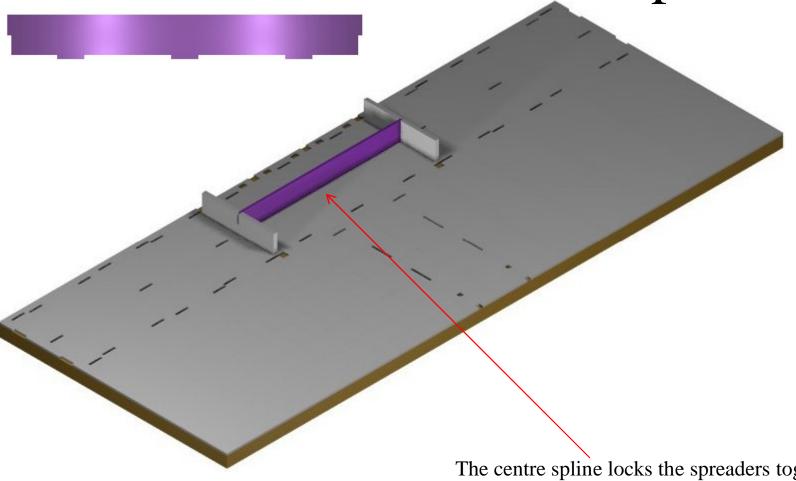








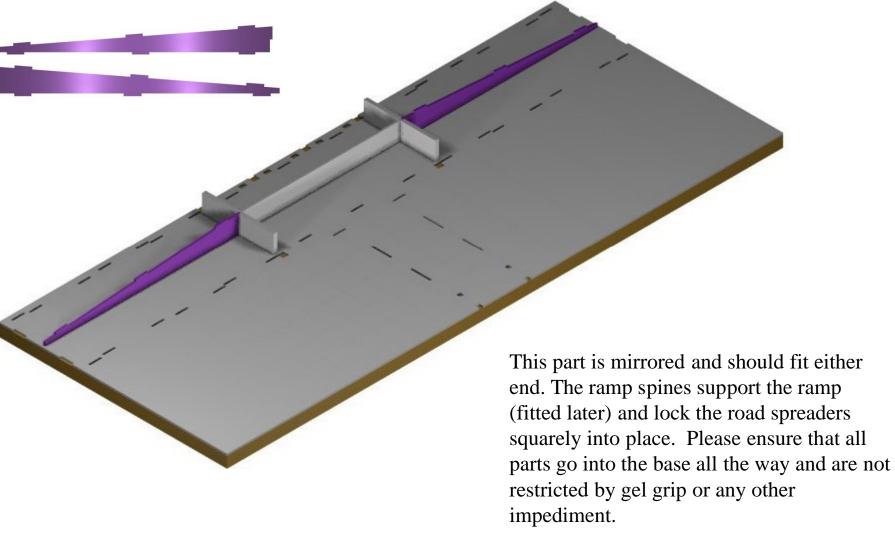


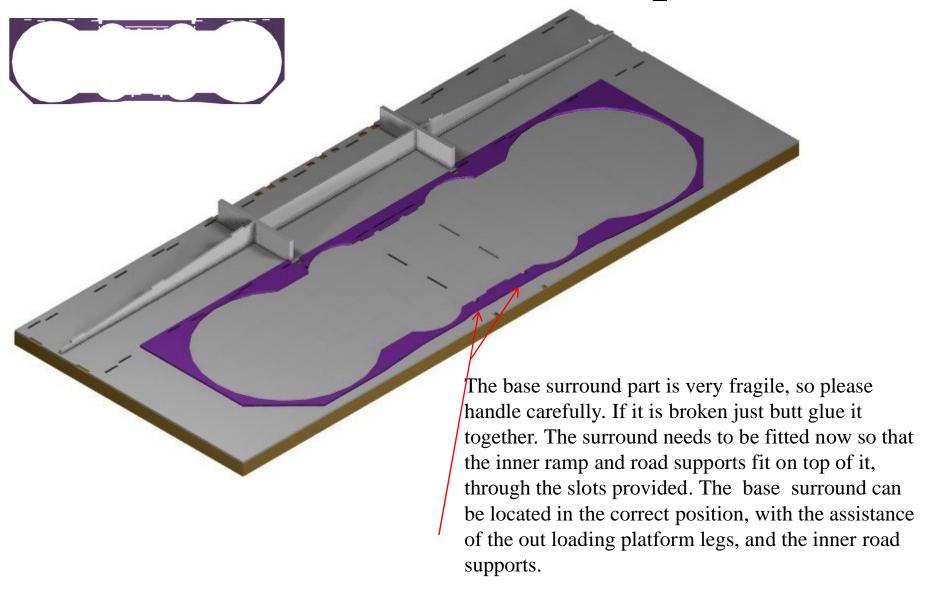


The centre spline locks the spreaders together, making the structure rigid.

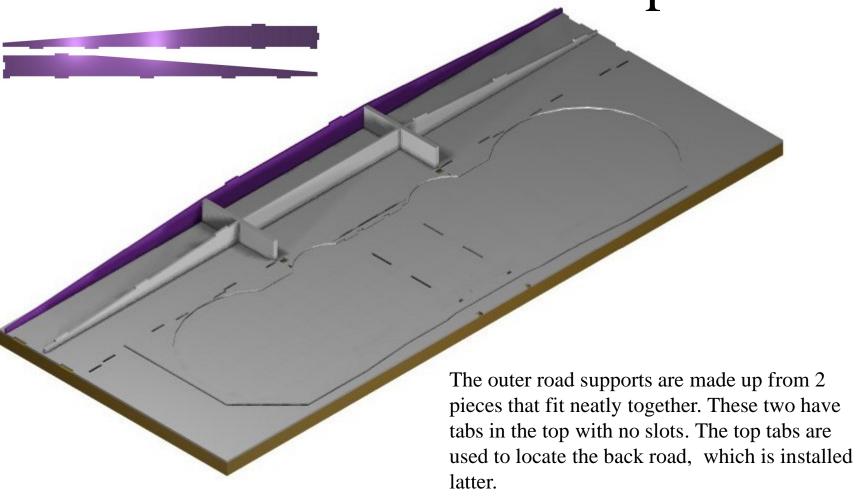
It does not go into the outer spreaders as the ramp spines will need to fitted into them.



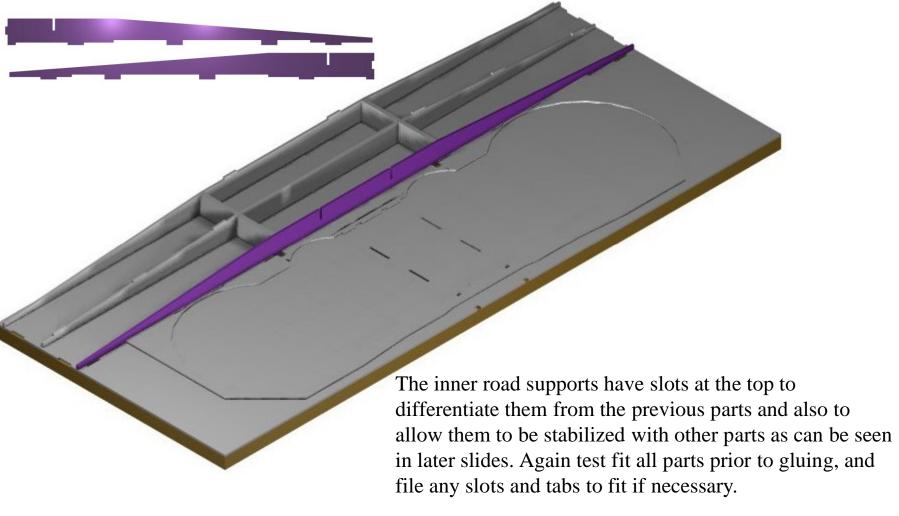




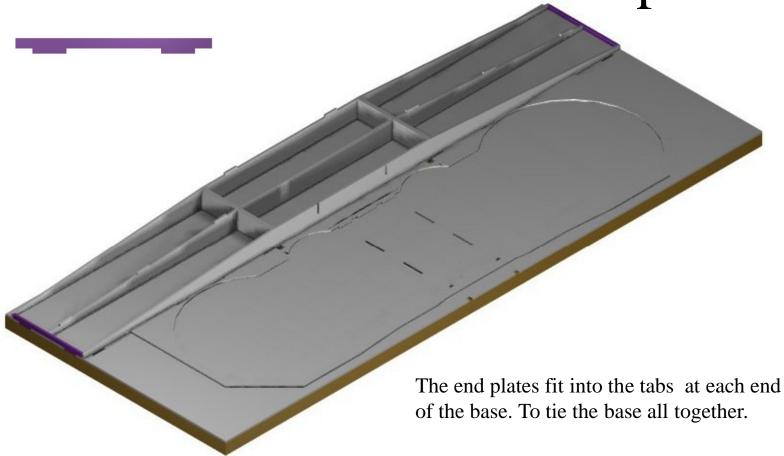


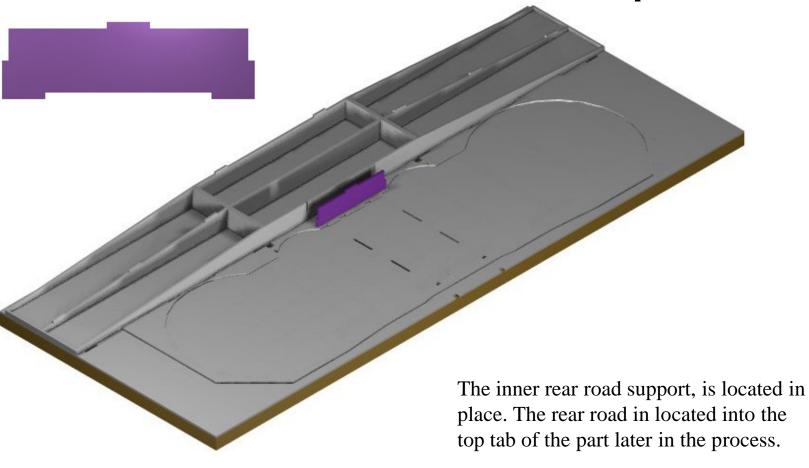


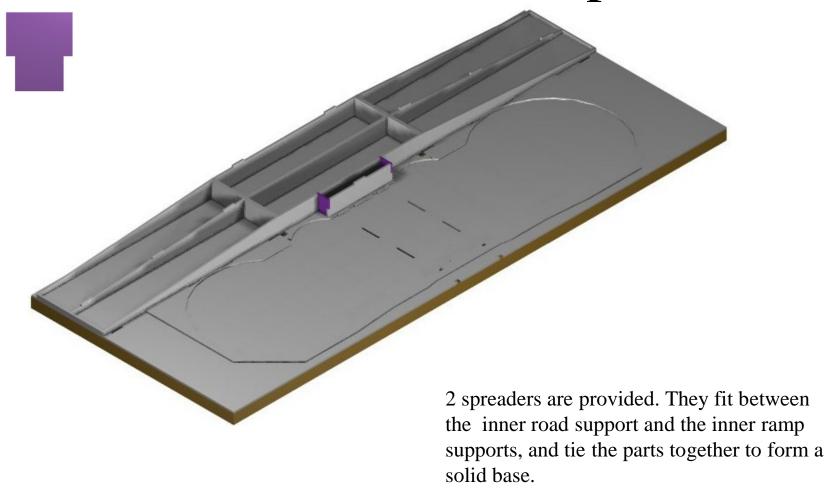


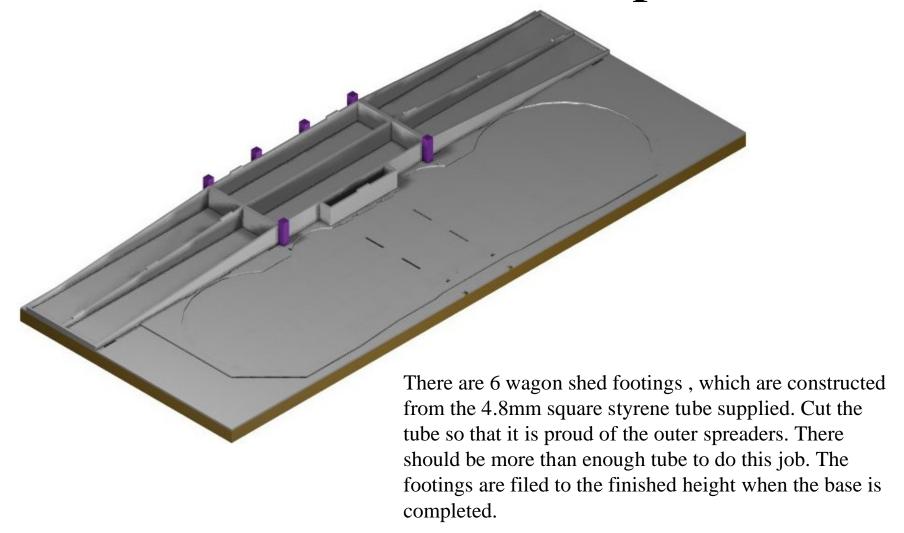




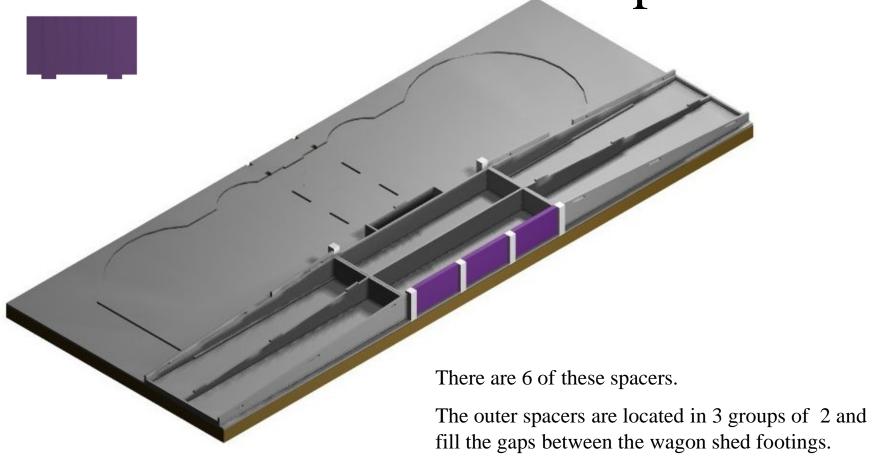




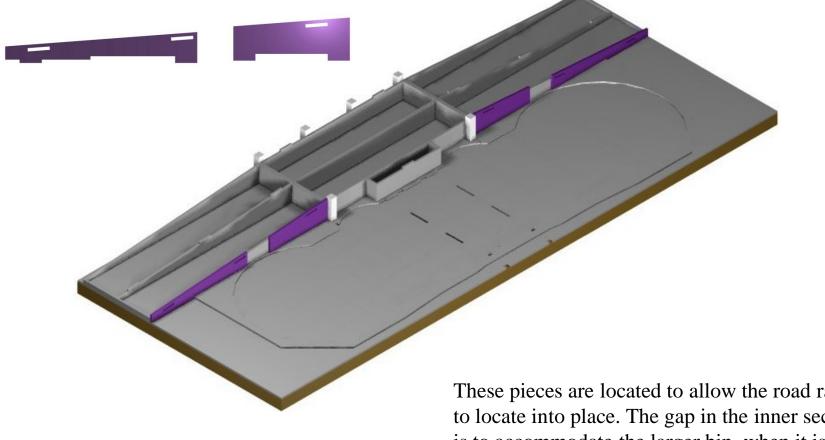






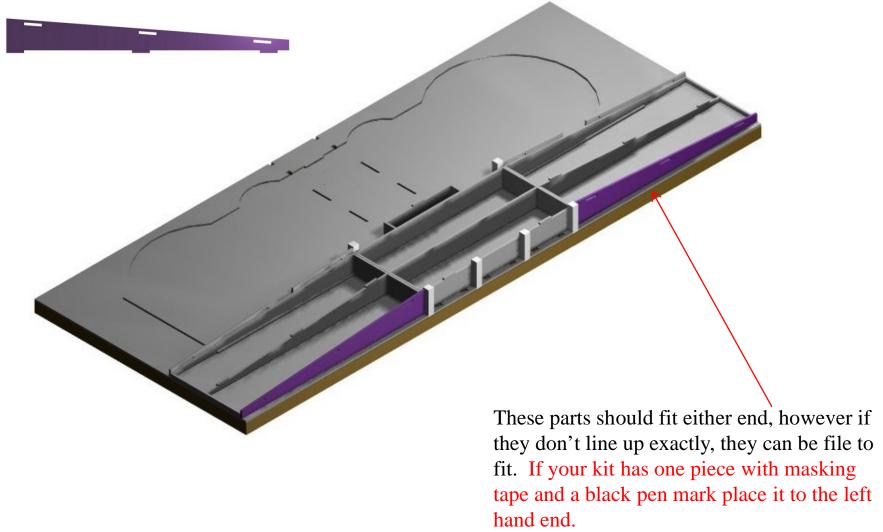


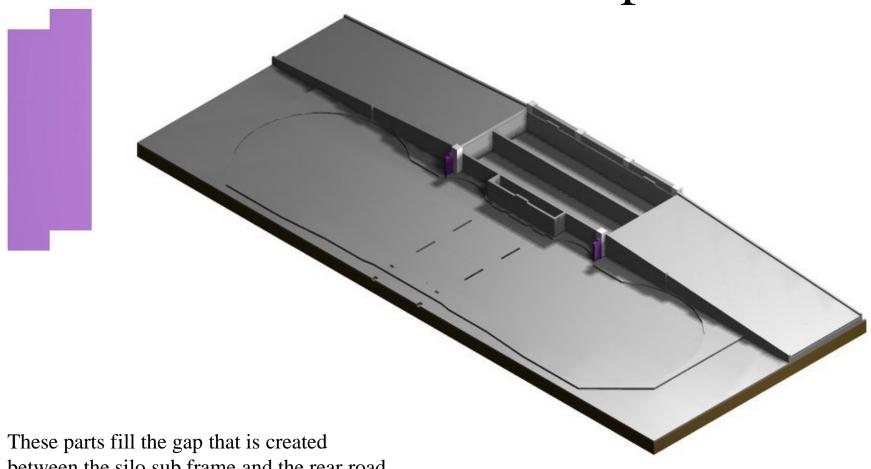




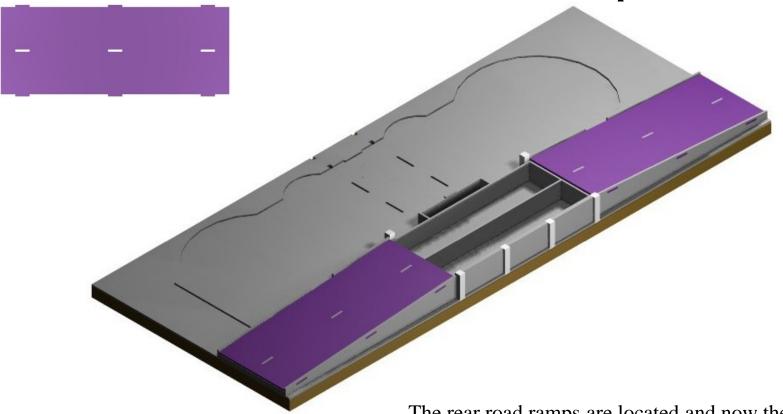
These pieces are located to allow the road ramps to locate into place. The gap in the inner section is to accommodate the larger bin, when it is finally fitted.

Do not glue these into place until the rear road ramps have been located.



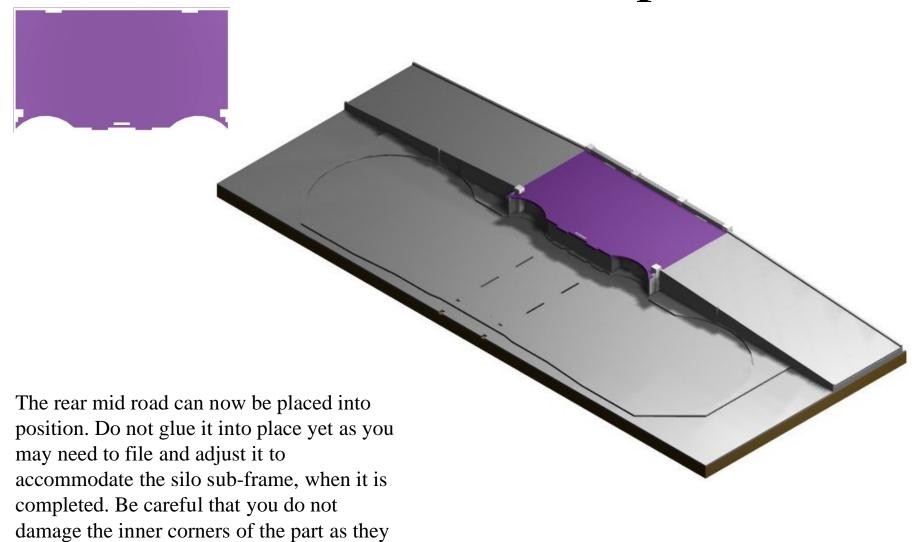


between the silo sub frame and the rear road and can be glued into place after they are check for fit.

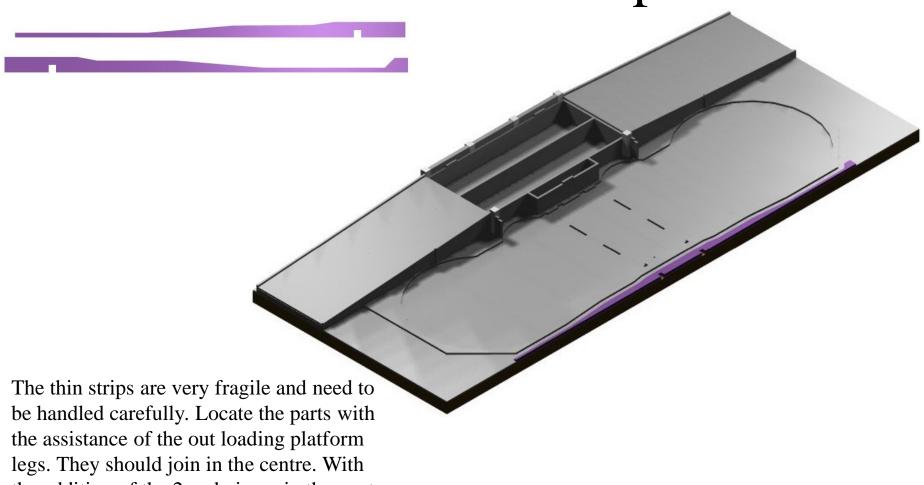


The rear road ramps are located and now the side supports and the ramps can be glued in place together

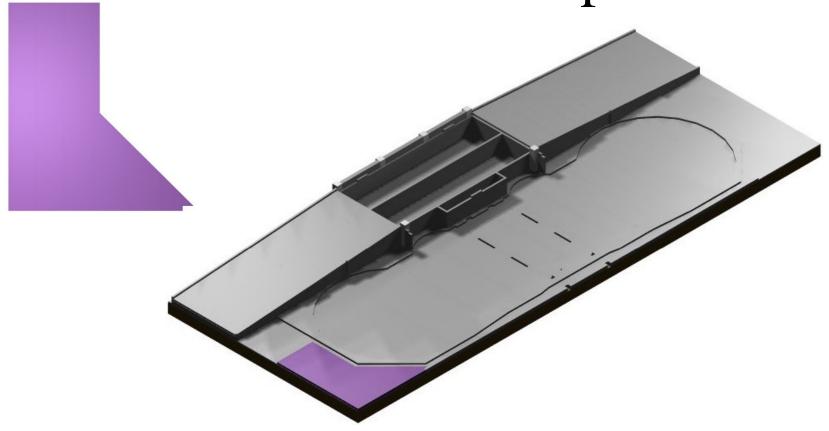
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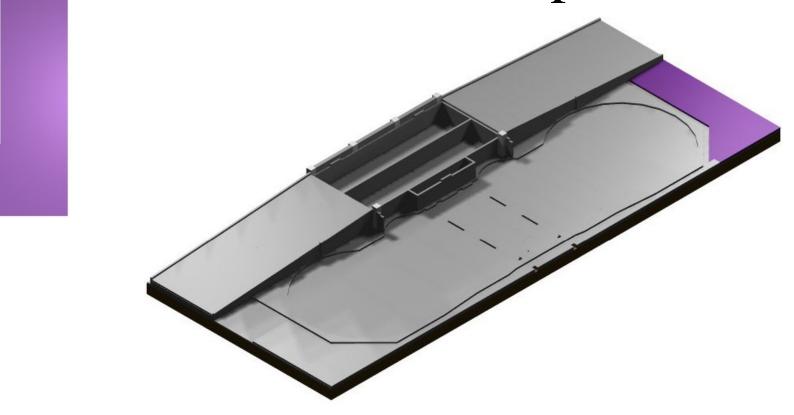
are very fragile.



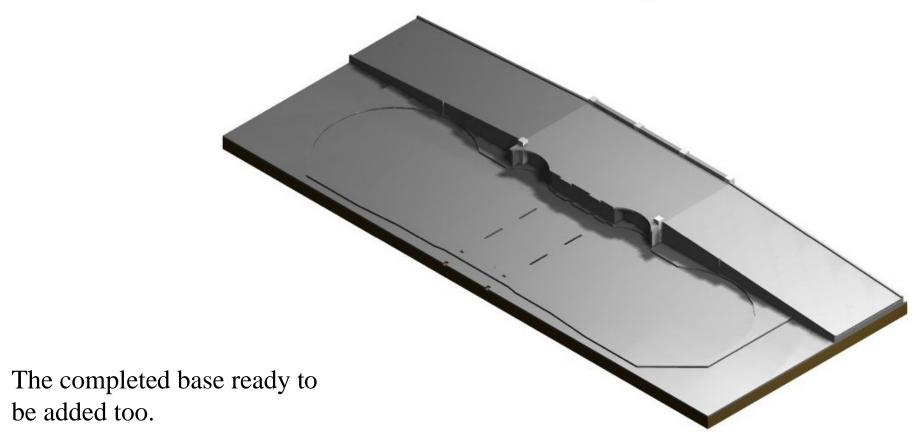
the addition of the 2 end pieces in the next 2 slides the drain should be formed. Glue the parts only when all 4 base parts are test fitted



The left end base is fitted next and should fit neatly to the right front corner. Only glue into place when happy with the fit.



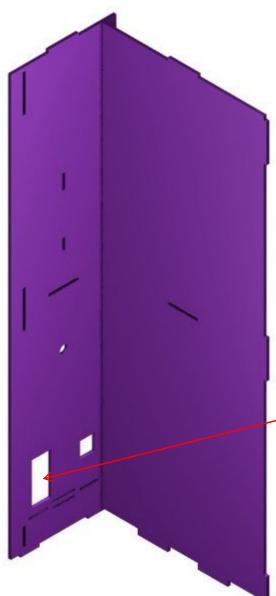
The right end base is fitted next and should fit neatly to the right front corner. Only glue into place when happy with the fit



So Far, So Good!!!!!!

- Now if you have gotten this far without any problems, the hard bit is done only kidding there are plenty of hard bits to go (joking).
- ➤ The base is now all glued together (there is more work to be done on it but more about that later) and can be set aside to dry, while you proceed with the next sub assembly ---- the Silo Sub-Frame.
- The following slide show the method of construction of the silo sub-frame and then follow through to the construction of the roof section, that is fitted to the sub frame.

Silo Sub Frame - Step 1



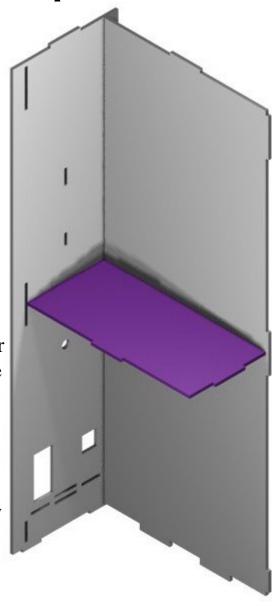
Please test fit all of the panels before gluing together. When you are happy with the fit, you can then proceed.

The front panel and one side panel are fitted and glued. The centre brace is then glued in place.

Note that the side panels can only be fitted one way as the bottom tabs are smaller. However the front panel can

However the front panel can be reversed, so be careful. The door is always to the right side of the silo (looking from the front of the silo)

Ensure that all parts sit absolutely flush, and run glue between parts allowing capillary action to work the glue into the joints, when the sub frame is complete.



Silo Sub Frame - Step 2



The other side panel is located and then the back panel.

When you have all of the parts in place, use elastic bands to hold the sub frame together, and run glue between the joints.

Please do not allow glue to touch the elastic bands.

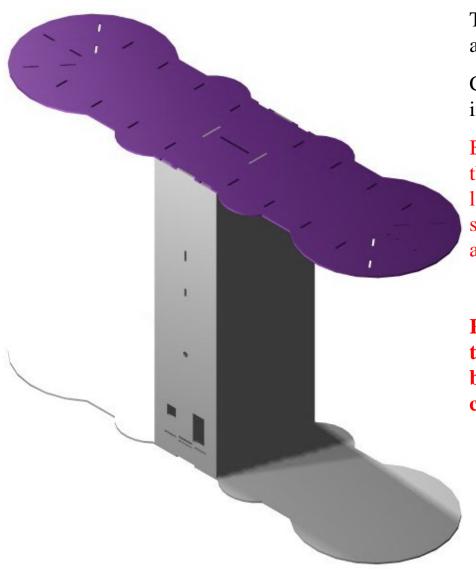
Set aside to dry before proceeding.

NOTE that this completed frame has to be joined to the top and bottom plate of the substructure in the correct orientation, more about this next.



Silo Sub Frame - Step 3





Test fit the top plate before fitting and clean up any slots and tabs accordingly.

Check the fit of all the parts that will be located into the top plate before gluing it into place.

Be very careful how you handle the structure at this stage as the parts have no support at the large bin end and they can be easily broken by a simple over zealous push when trying to locate a stubborn tab.

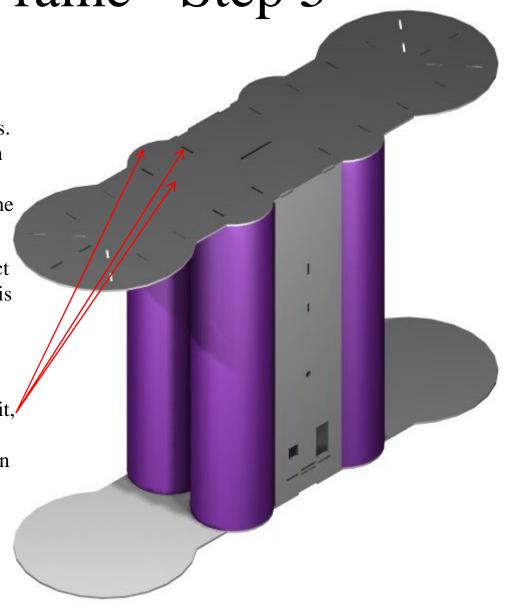
Remember to treat it carefully. If it breaks the part can be butt glued, but it then becomes a much more difficult task to complete.

The next step is to fit the small bins.

The 50mm electrical conduit should fit neatly to the outer edges of the top and bottom plates. If for some strange reason they don't, you can file a flat on the inside of the conduit to allow the conduit to sit back toward the middle of the silo. (If required)

If you have located the conduit into the correct location, and it is too tight - file it down. If it is too lose, you may need to pack it with thin styrene. (If anything the conduit should be tight)

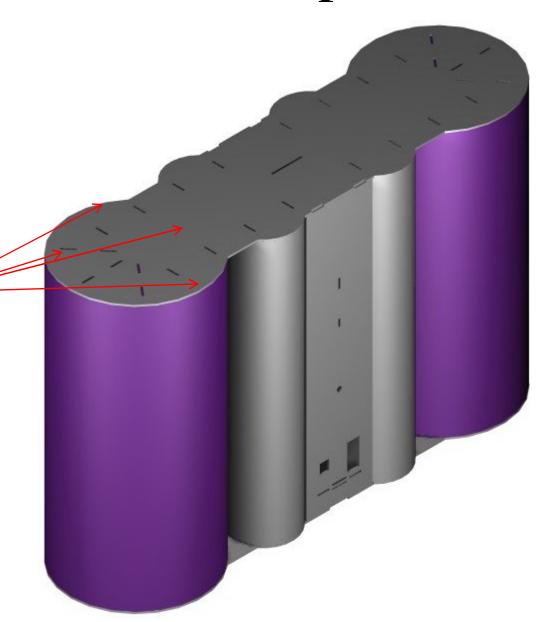
To provide an absolute location for the conduit, drill and fit 3 lengths of 1mm brass wire into the conduit edge, both top and bottom then run the glue into the joint



The same method applies to the location of the large bin. The 110mm sewer pipe supplied can be trimmed or adjusted with styrene if necessary.

1mm wire can also be use to locate the conduit in place before flooding with glue. Remember to locate them both top and bottom.

When fitted and glued, file the 1mm wire down flush with the acrylic.



The finished silo substructure, ready to have the cupola and roof section fitted.

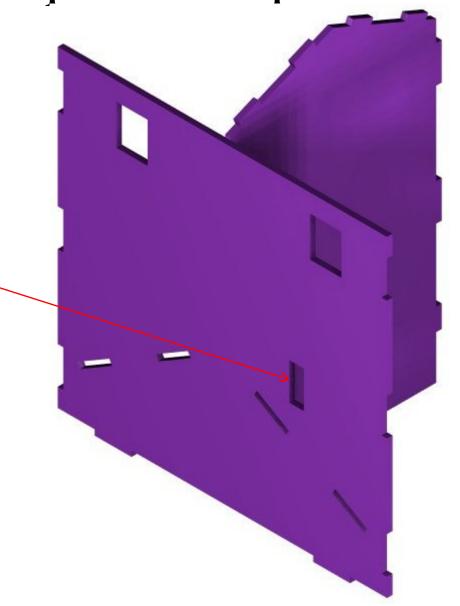


Onward, and upward

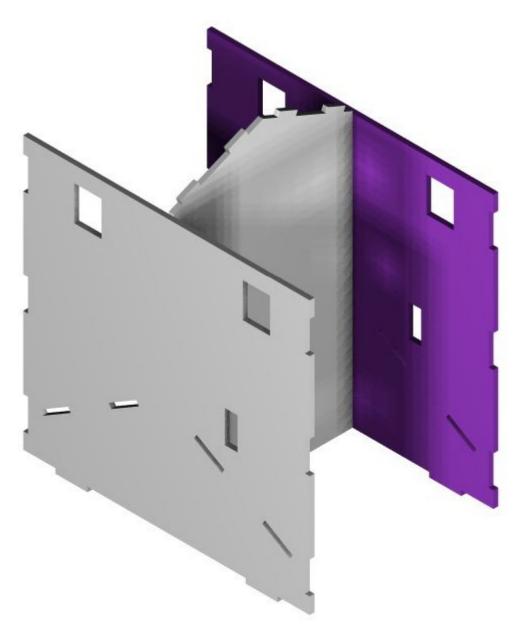
- The next step is construct the Cupola and Bin Roof.
- ➤ A fairly straightforward process, depending on how you worked with the Sub-Frame
- The only problem that you may encounter, is a dip in the acrylic over the large bin area. You will need to adjust the roof supports to accommodate any dip.
- ➤ Let us proceed to the Cupola and Bin Roof

Please note.

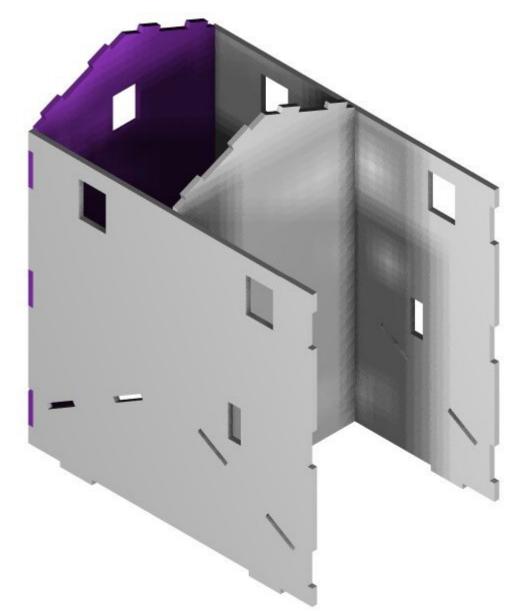
The cutout for the pipe from cupola to large bin is located at the front of the silo. So make sure that the parts are orientated as per the diagram.



At this stage the structure is a little wobbly. But it will strengthen up in the next couple of steps.

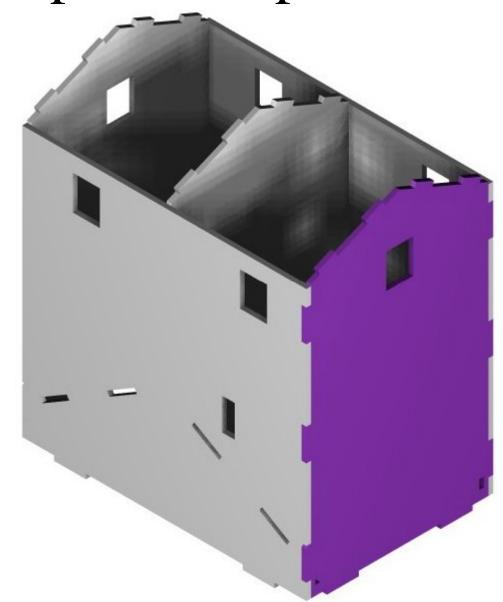


The cupola should be self squaring as the slots and tabs are a neat fit.

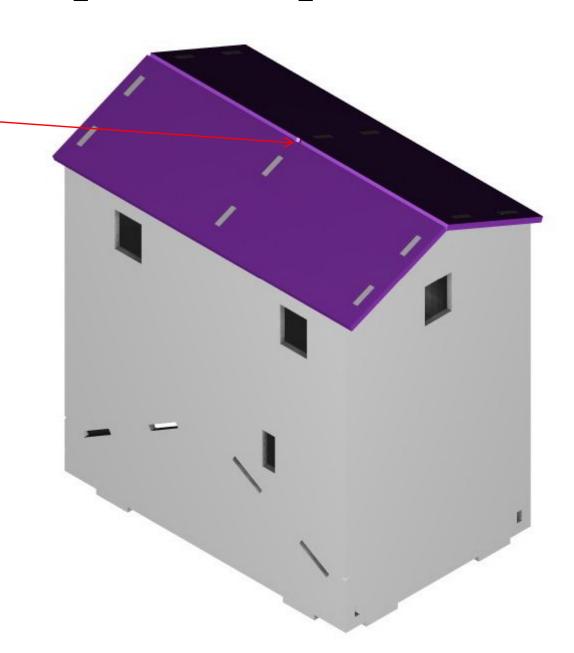


With the addition of the roof sections the building will become square and rigid.

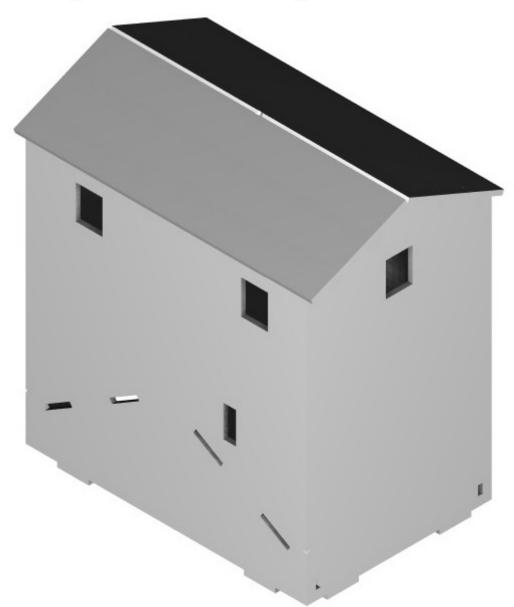
Rubber bands can be used to hold the structure together whilst the glue dries.



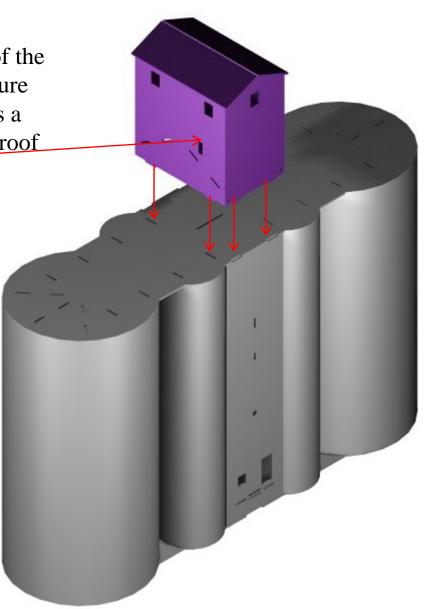
The roof sections bring the whole structure together, and square it up nicely. Please note that there is a small notch in the middle of the roof sections. These notches go to the top centre of the roof, as the roof sections are slightly offset

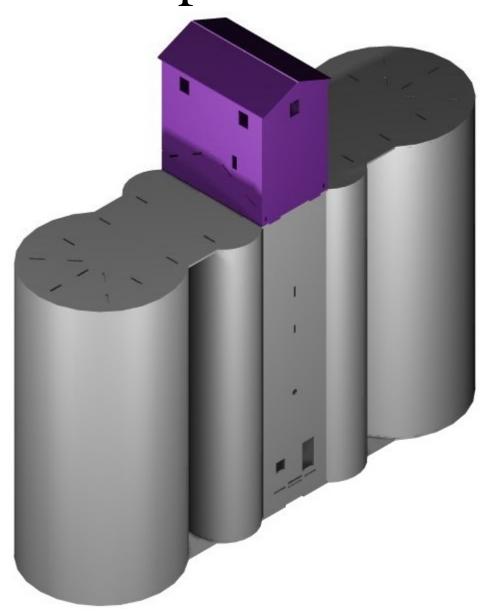


The finished cupola ready to be added to the sub-frame.

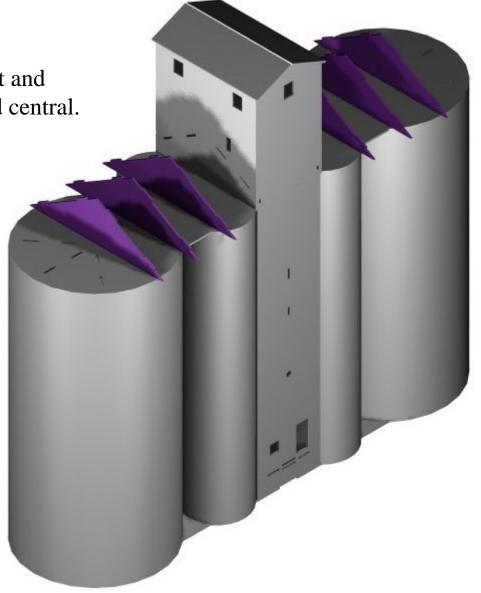


Locate the cupola into the slots in the top of the sub frame, file and adjust if necessary. Ensure that the opening is to the front of the silo as a tube is located from the cupola to the long roof section.



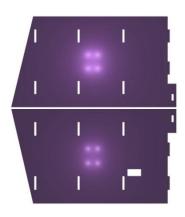


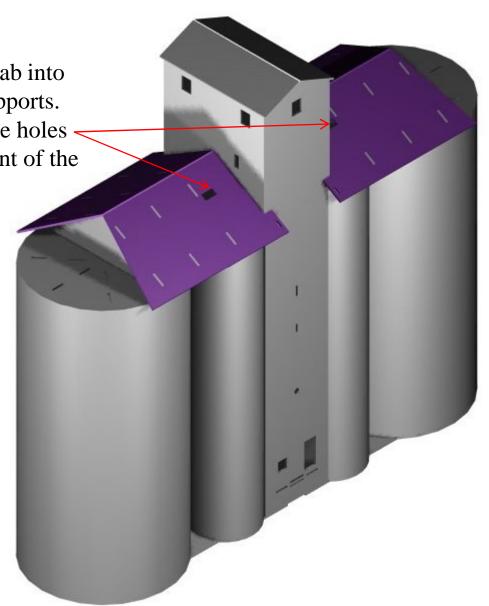
The long roof supports are located next and allow the roof sections to fit neatly and central. The roof sections are fitted next.



The roof sections are fitted next. They tab into the cupola and then tab into the roof supports.

Make sure that the roof sections with the holes to accommodate the tubes are to the front of the silo







The roof end supports are fitted next, and may need to be adjusted for any dip in the sub frame top. This will become evident when fitting the

end roof sections.





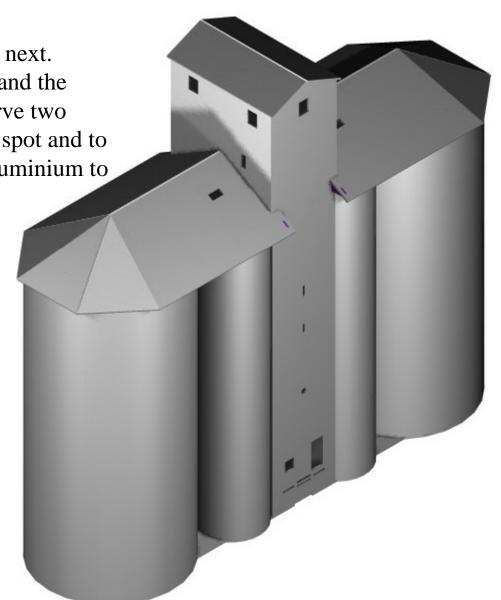
The roof end sections may need to be adjusted by filing. This will depend on the variations with the dip in the sub frame top dip.

What needs to be achieved is that the roof sections arte flat so that the cladding sits neatly on top.

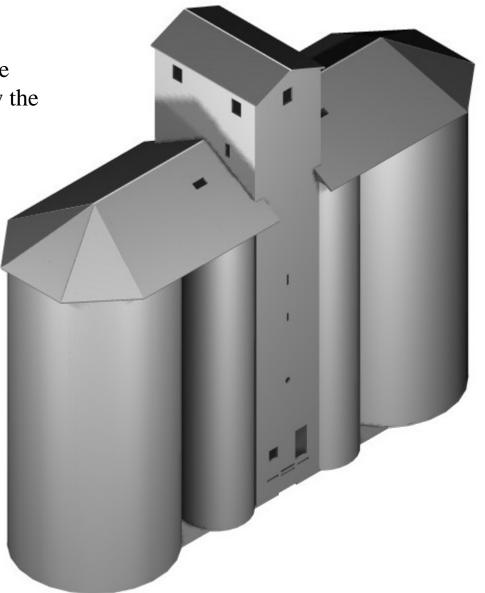


The small inner supports are located next.

These are fitted between the cupola and the inner edge of the long roof. They serve two purposes, to support the roof at this spot and to allow a surface for the corrugated aluminium to be glued to.

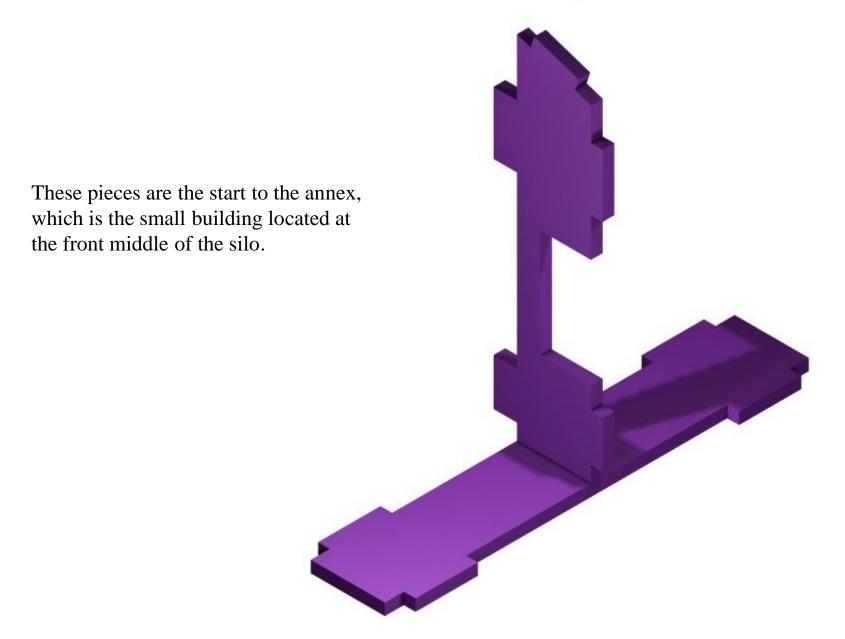


The finished silo sub frame, ready to have fascia, gutters and cladding applied. Now the fun starts.



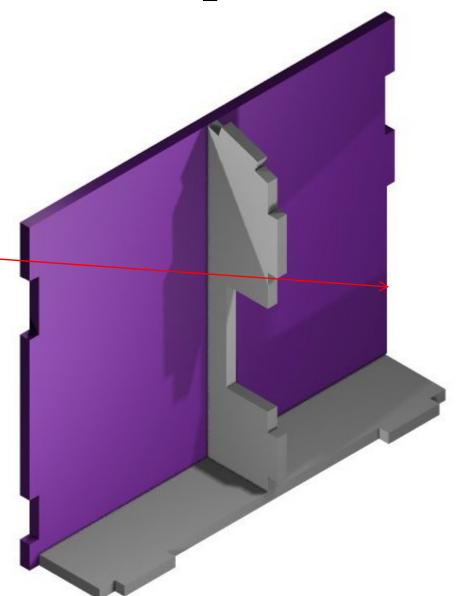
Another Step Down – Nearly Done

- The main 3 sub-assemblies are now built. Now we can concentrate on the smaller sub-assemblies.
- These smaller assemblies are very easily fitted to the main assemblies at a later time.
- Firstly the Annex, then the Spoil Bin, The Out loading Platform, the rear Step and the Front Step
- ➤ The Annex is located on the front of the silo and slots are provided where it will fit.
- ➤ So lets get the smaller assemblies put together.

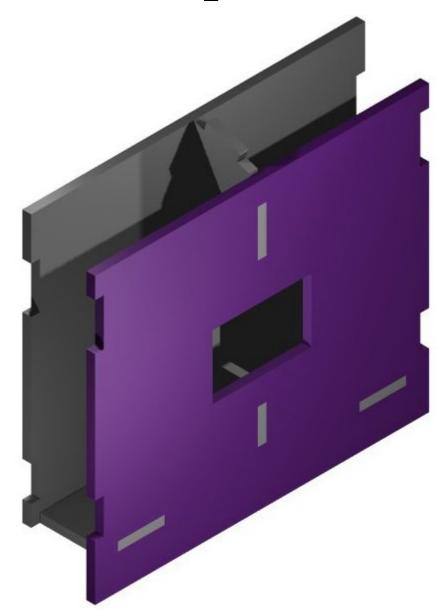


Locate the rear panel to the centre and floor, ensure that the panel is placed with the large void to the bottom right end of the annex.

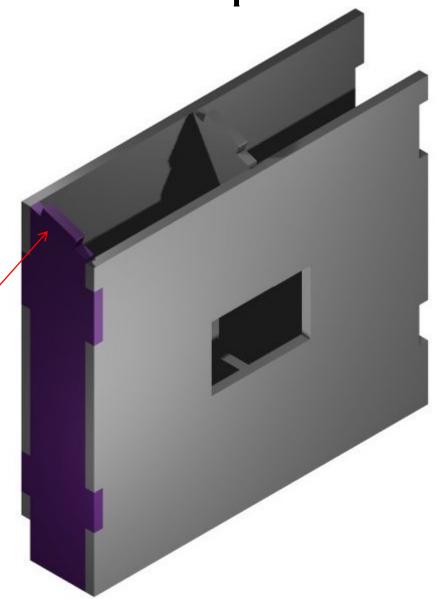
This accommodates the annex door.



The front panel is located next. The part is symmetrical, so it will fit either way.



The left side panel will square the annex and please locate the part so the top slopes to the front. While this might sound silly, but it has happened (To Me).



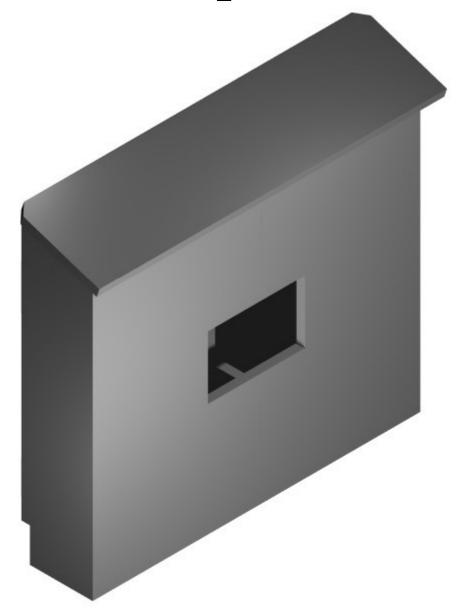
The right end panel of the annex is very fragile and care needs to be taken so as not to fracture or brake the panel.

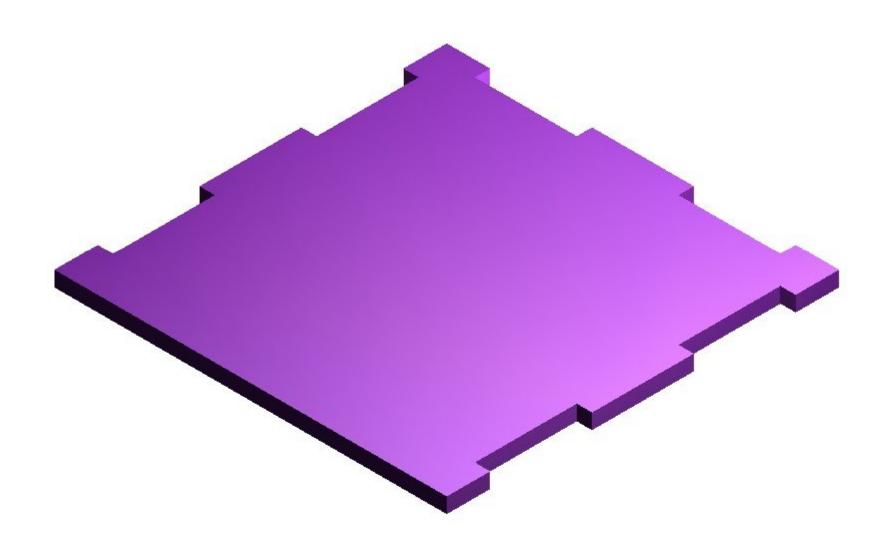


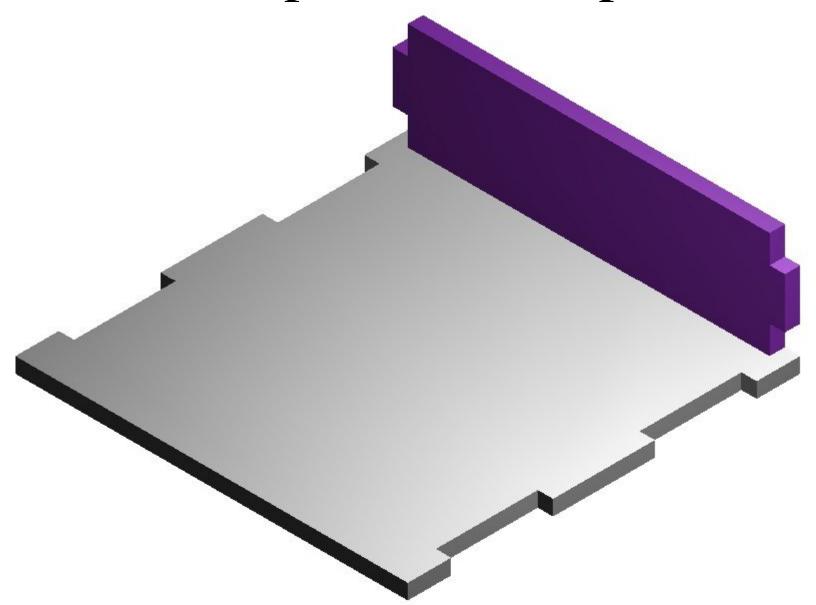
The roof squares up the annex, and is the final panel to be glued in place. Please note that the tabs protrude through the back of the annex, so that the annex can be fitted to the front of the silo.

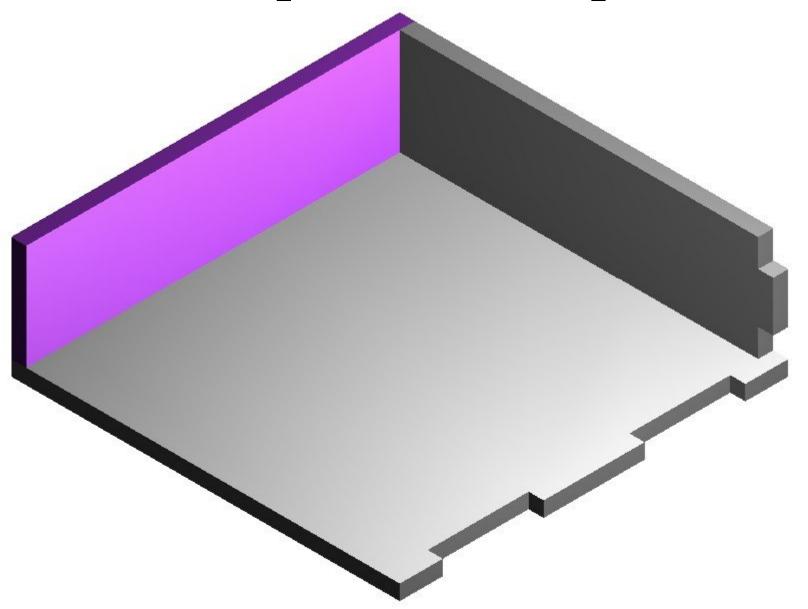


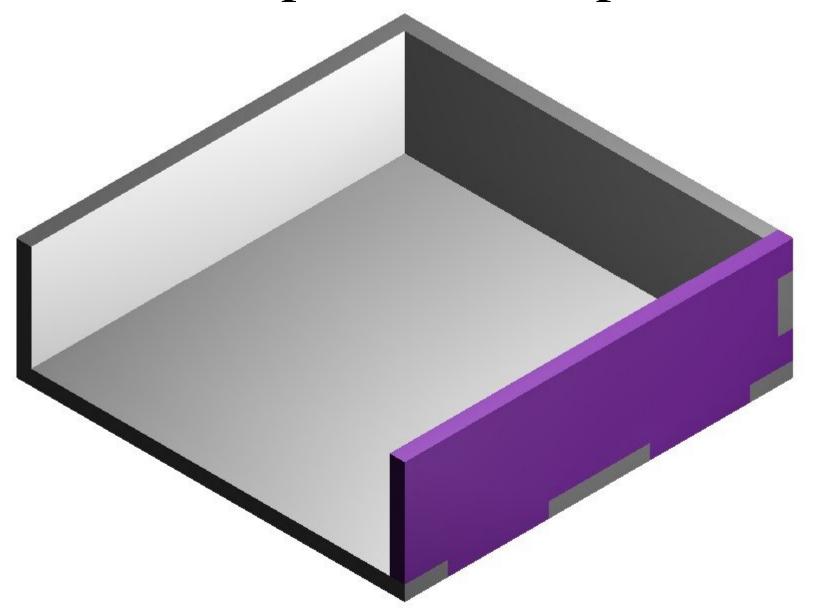
The annex, ready for fascia, gutter and cladding. RSJs can also be located under the floor of the cladding, as per the original silo articles. Photos on the CD give a better indication of the annex support.

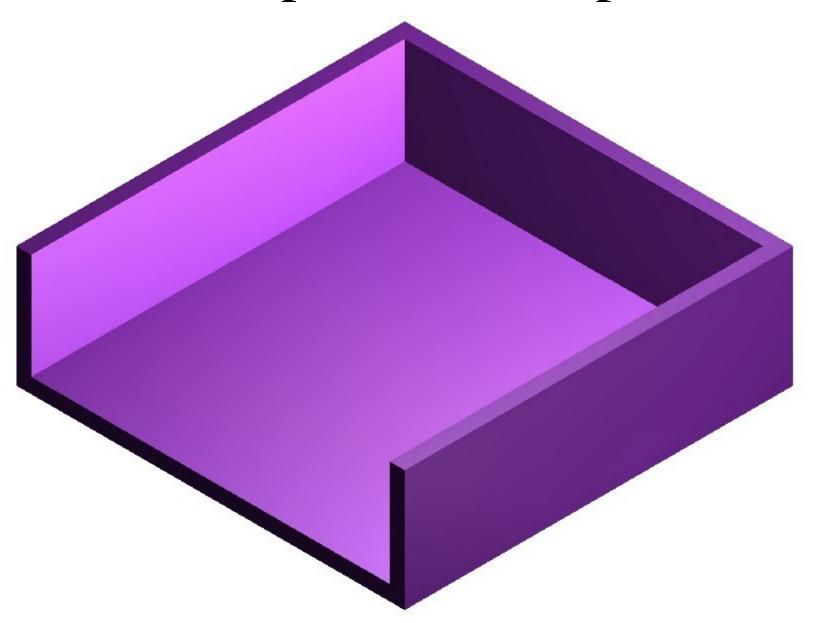


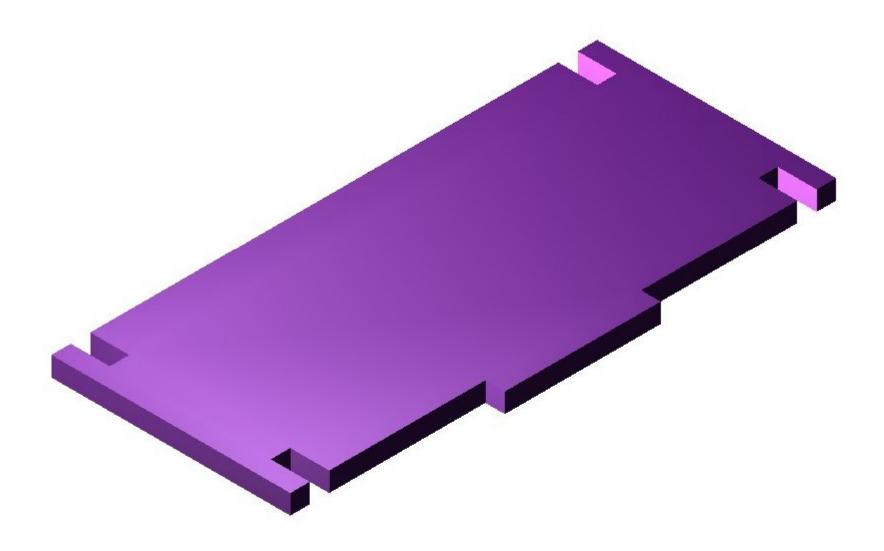


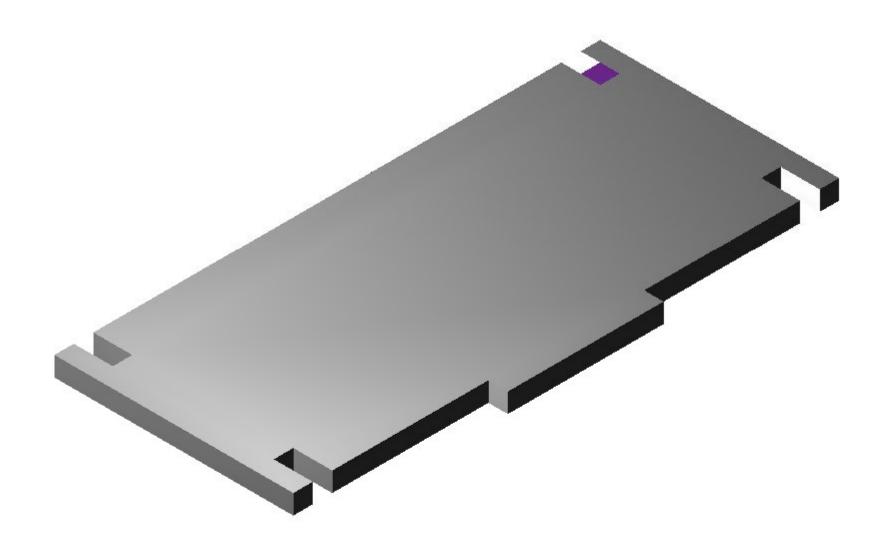


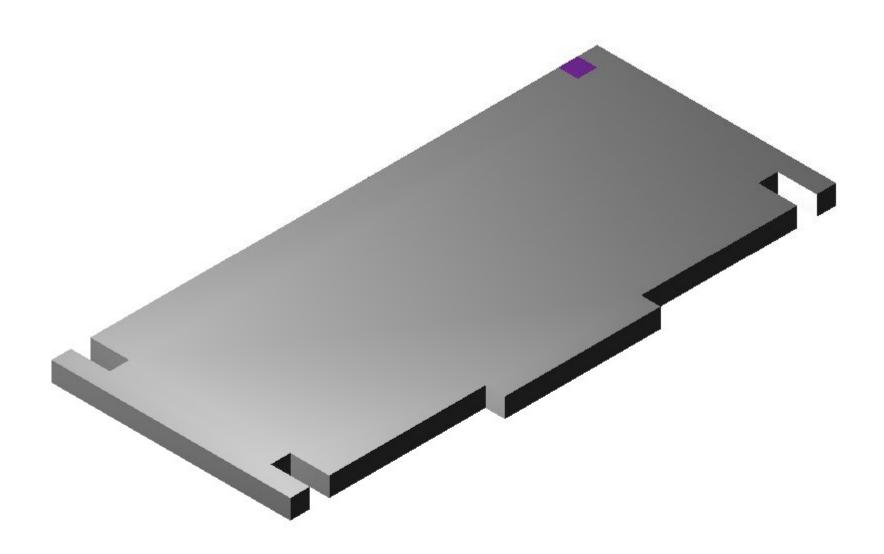


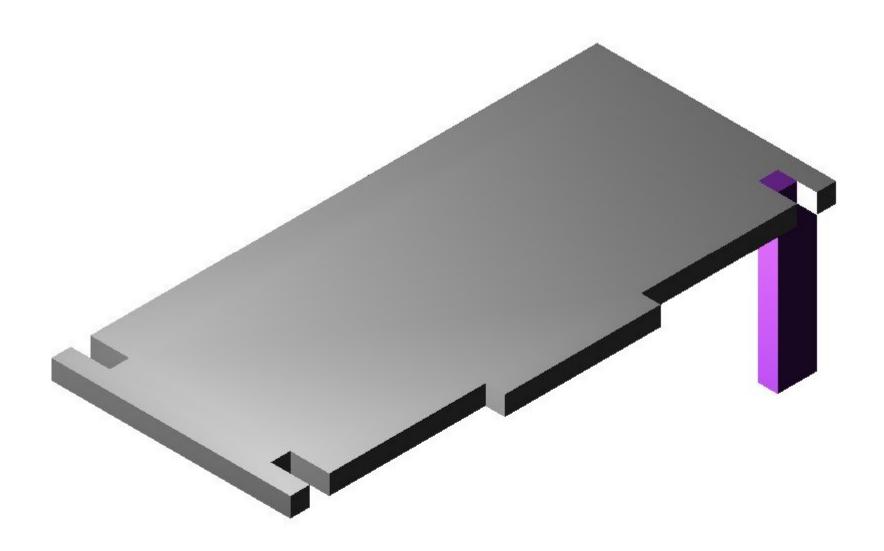


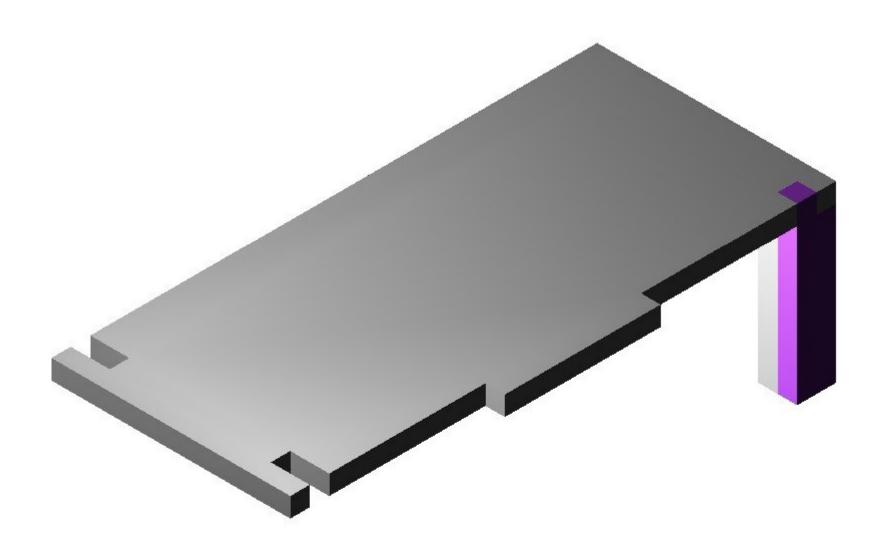


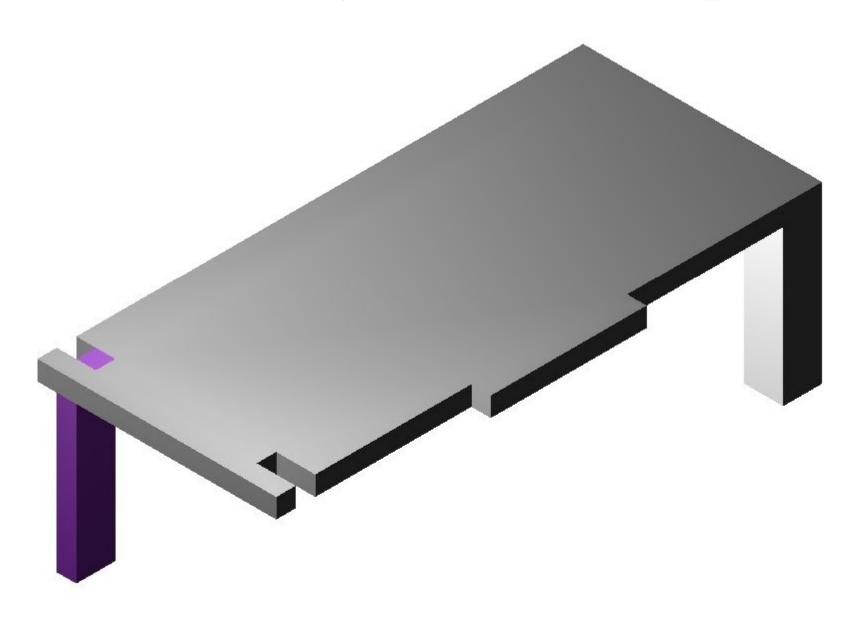


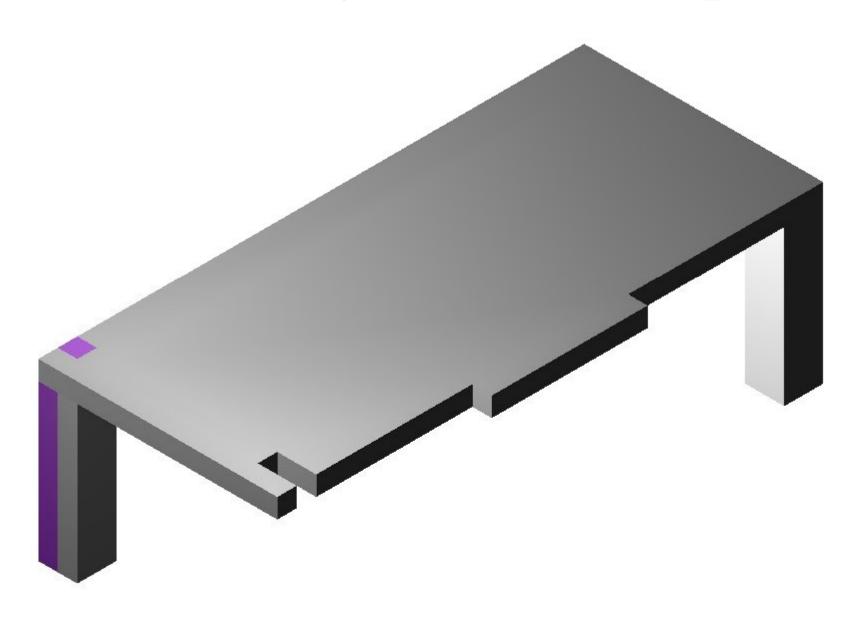


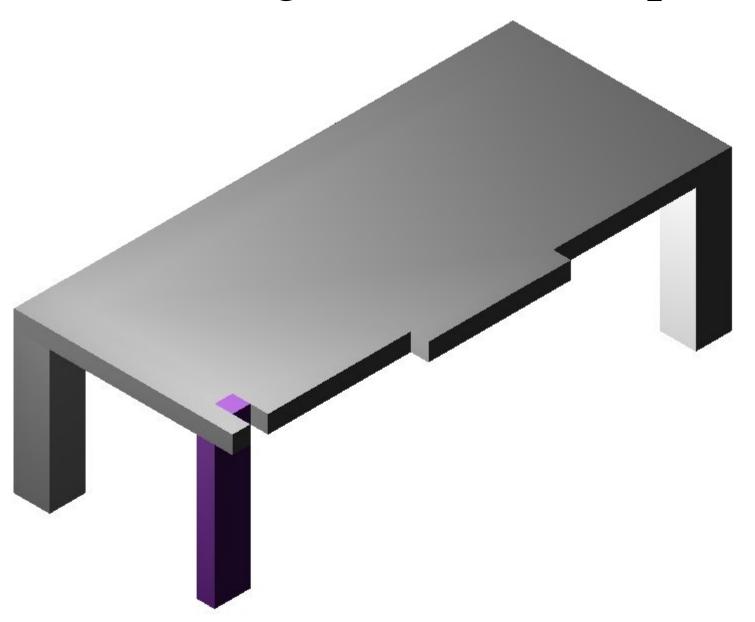


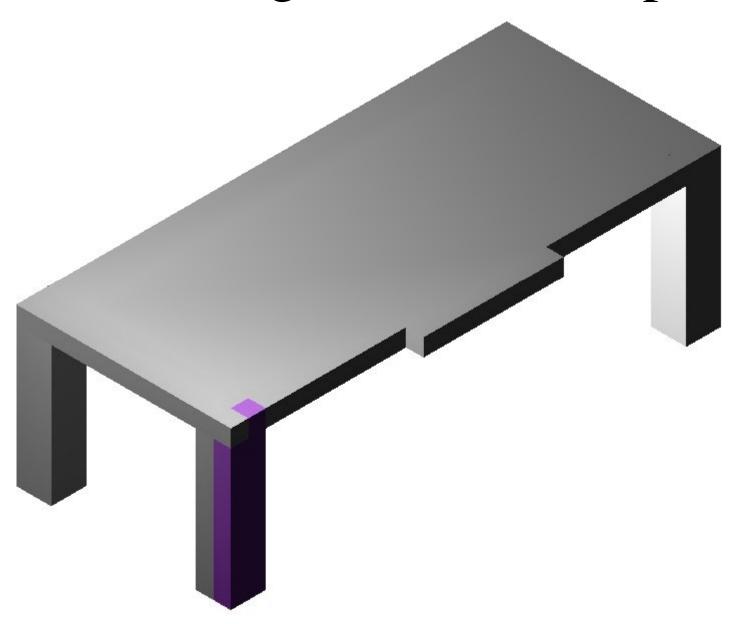




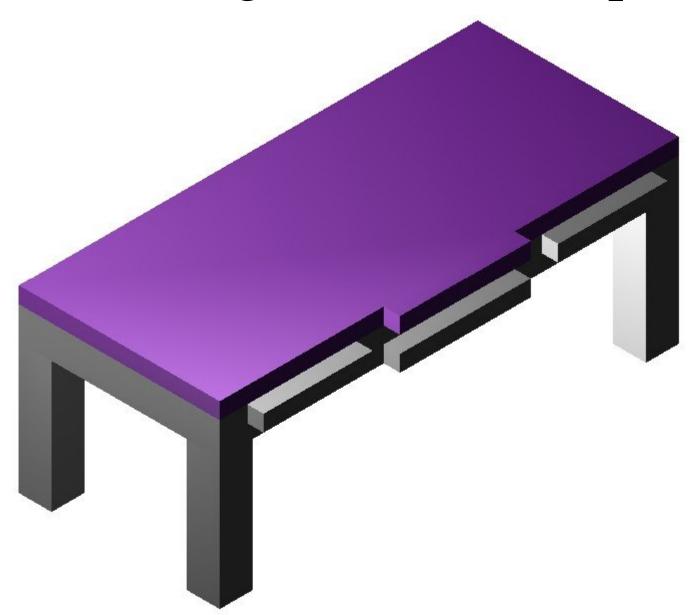


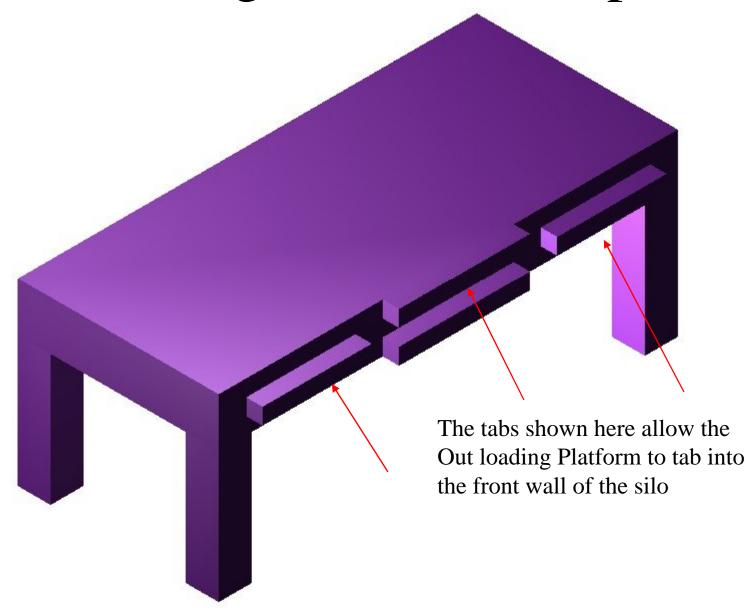




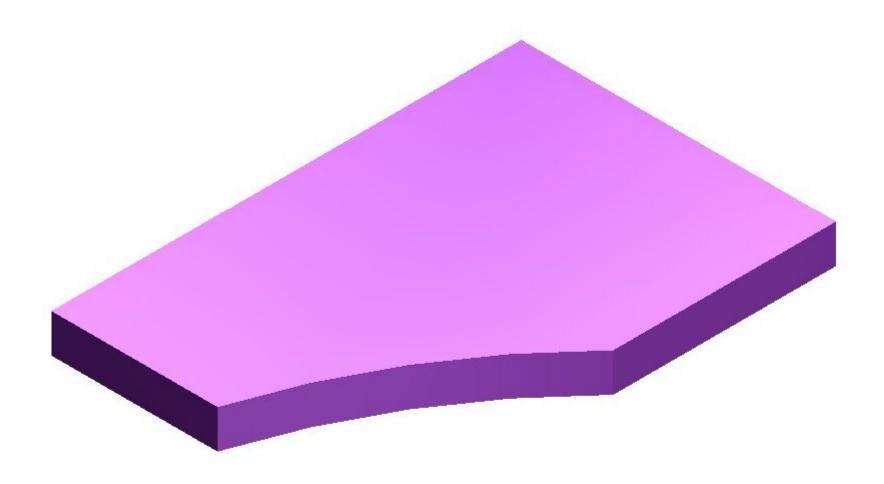




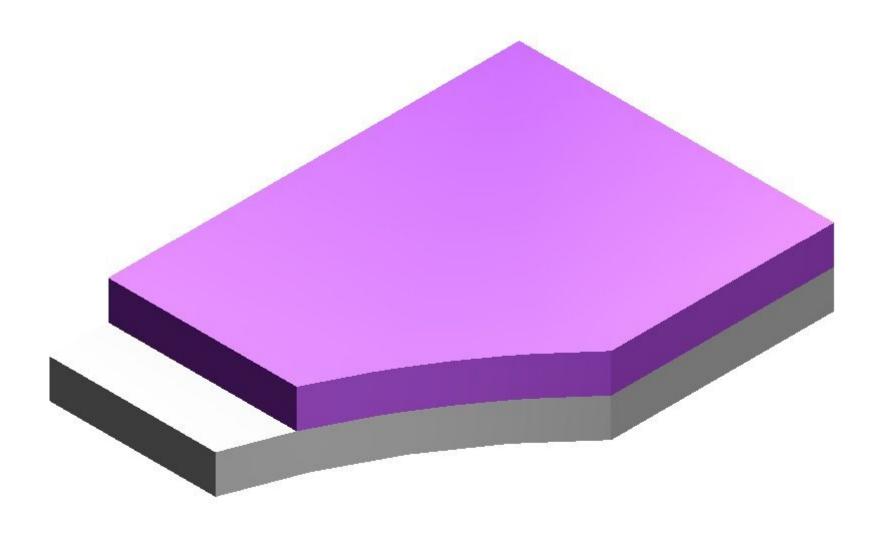




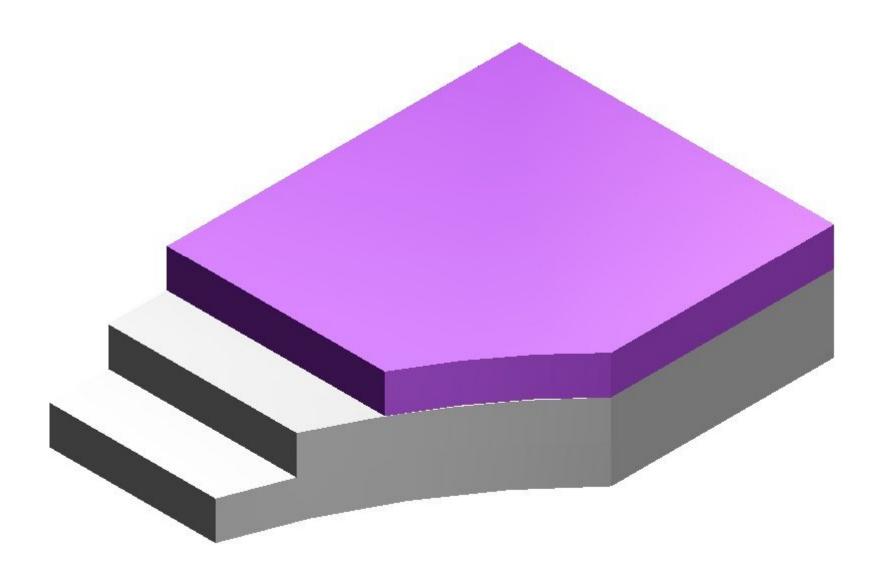
Front Step - Step 1



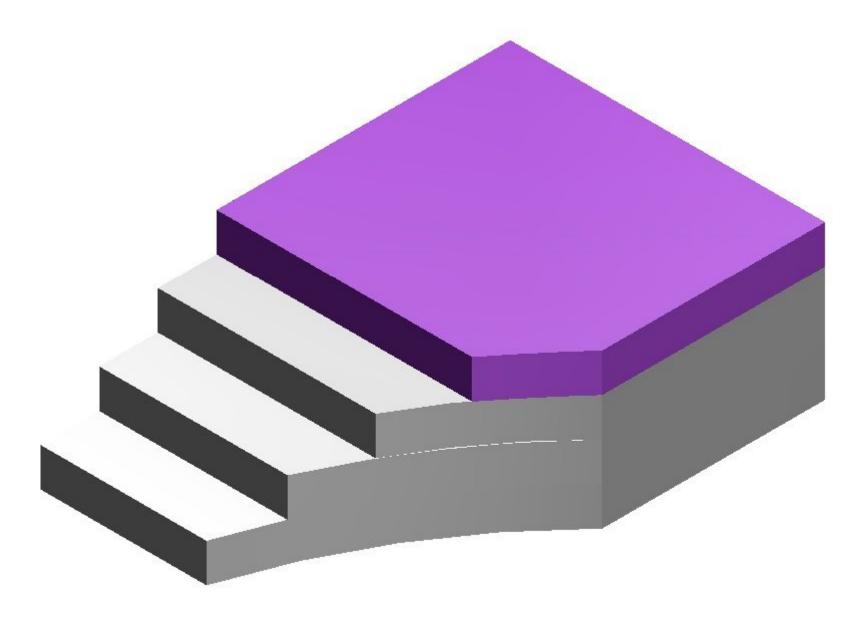
Front Step - Step 2



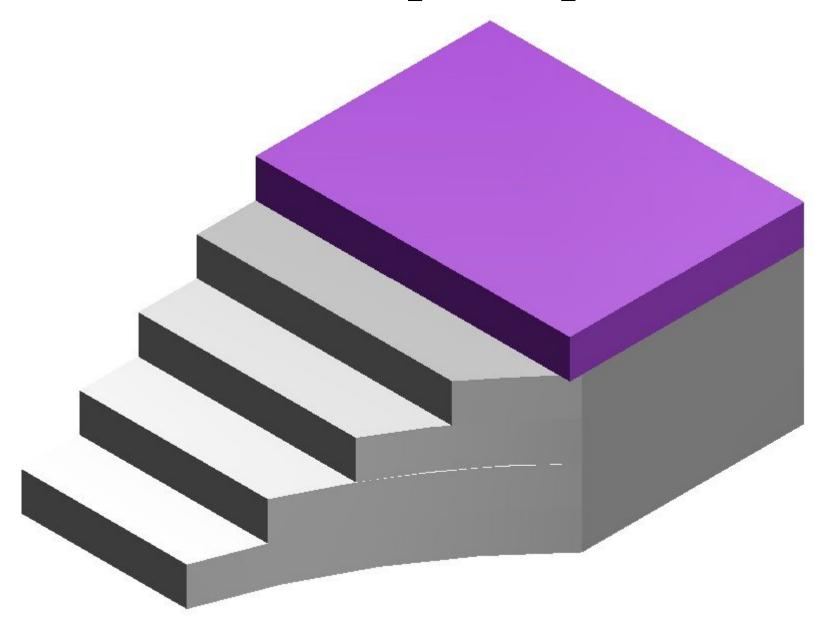
Front Step - Step 3



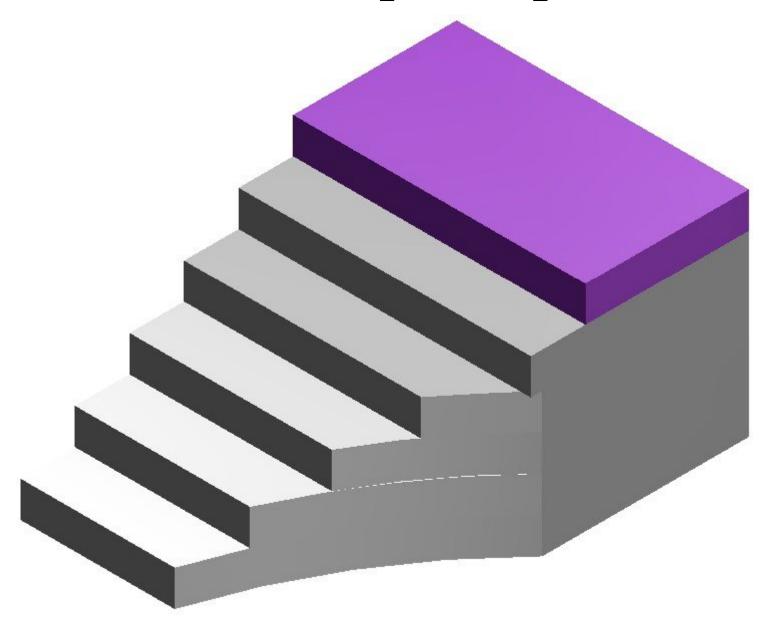
Front Step - Step 4



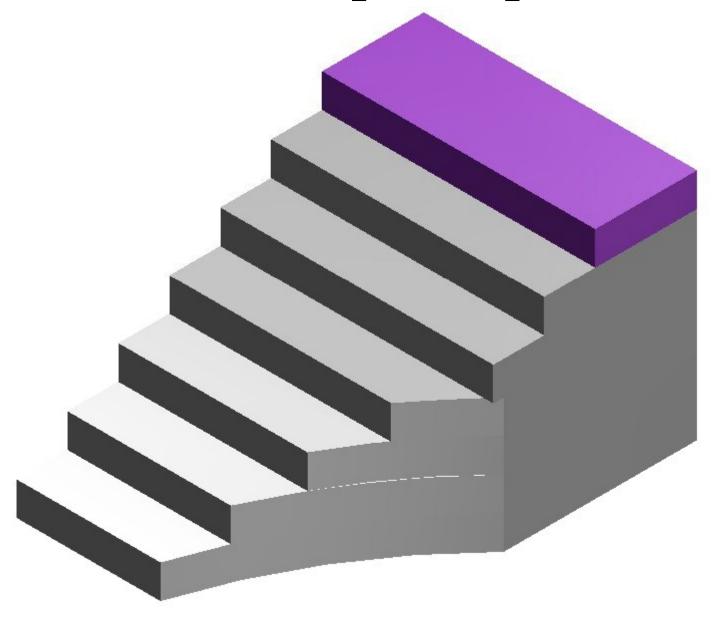
Front Step - Step 5



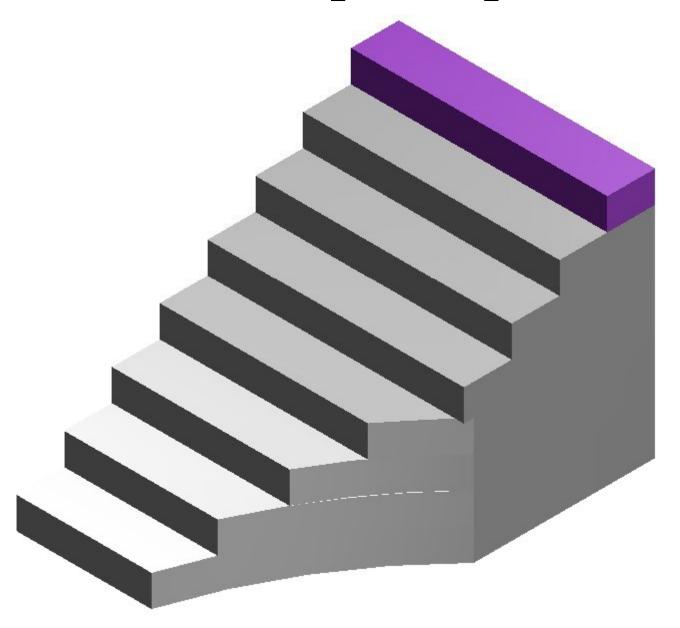
Front Step - Step 6



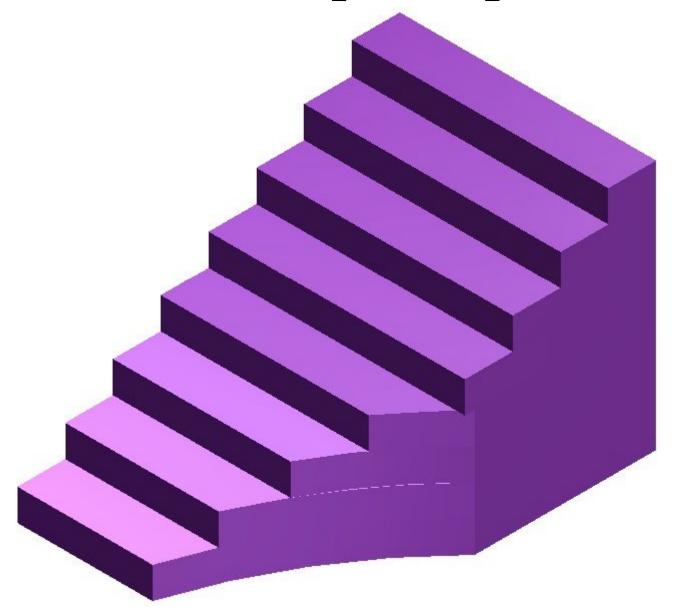
Front Step - Step 7

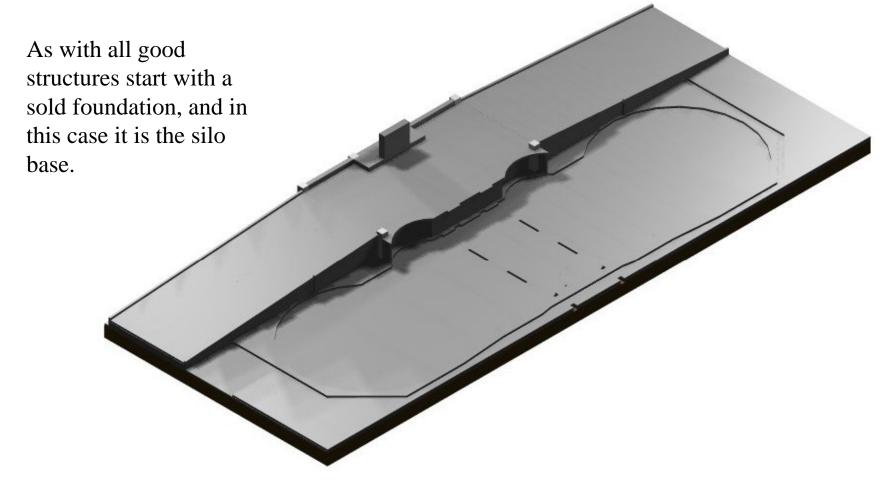


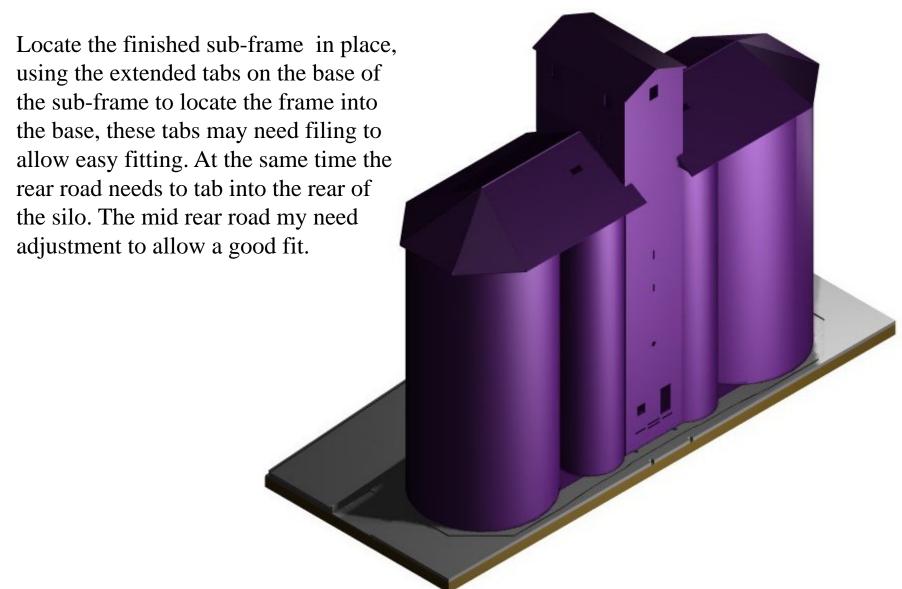
Front Step - Step 8



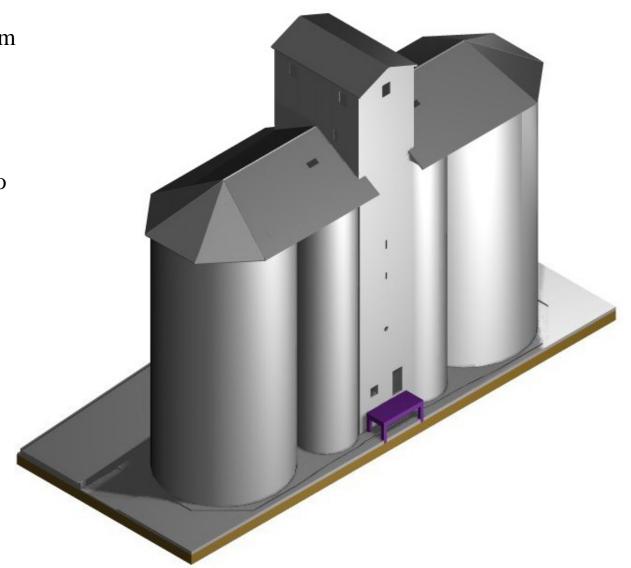
Front Step - Step 9



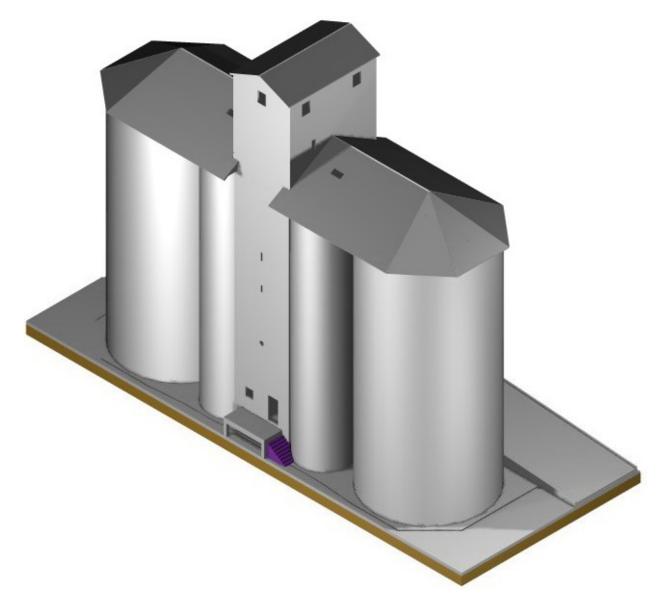




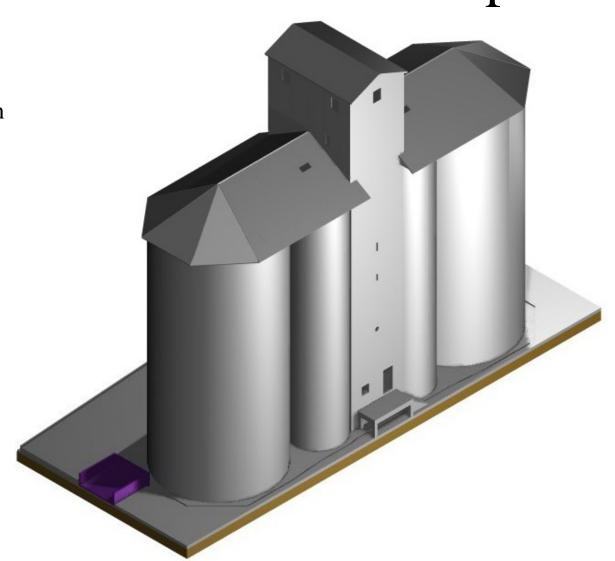
The Out Loading Platform is fitted to the sub frame and again the tabs may need filing to allow for a nice fit against the front wall. The feet will fit into the holes in the base.



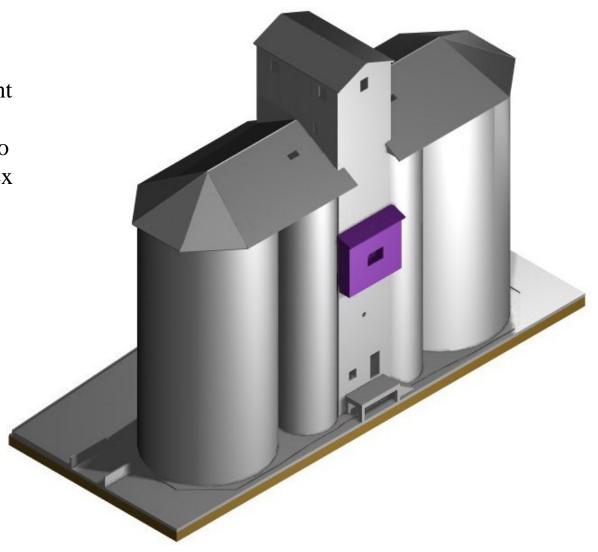
The steps form around the bin curve, and should fit flush against the side of the out loading platform.



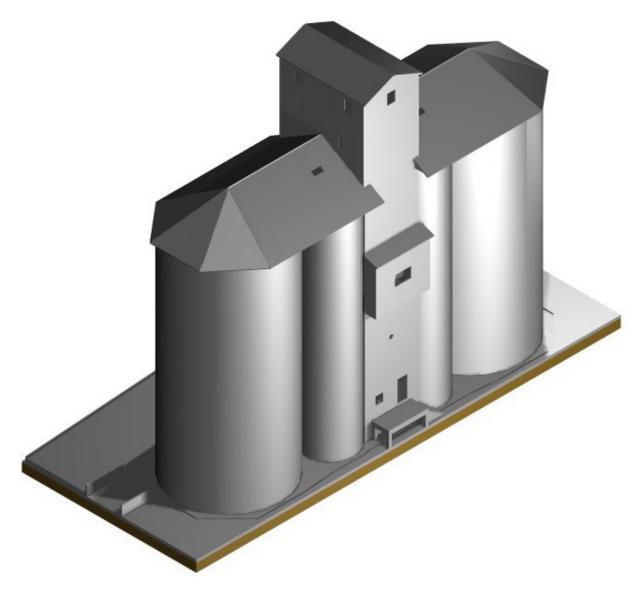
The spoil bin can be fitted against the rear road ramp edge and flush against the edge of the silo base.



The annex is located through the use of the extended tabs to the front wall of the silo. Do not glue the annex to the silo but try to make the annex a firm fit. To assist in this process it may be necessary to drill 2 x 1mm holes through the annex into the silo wall and locate and secure 1mm wire through the annex into the silo wall to act ass locating pins. The brass pins will be covered by the cladding on the annex wall



The finished silo structure with all of the acrylic components attached.



Putting it all together

- Although the sub-assemblies can now go together, there is work to be done on each sub-assembly before they are joined permanently.
- ➤ By all means test fit the parts, but be aware that there is much work to be done before they can be permanent.
- Some of the work will require other kits such as the KRM S04 Etched Brass Parts Kit, and the KRM S05 Accessory Parts Kit.
- > These kits available on the KRM website.
- The Information in the next few slides is not comprehensive and more detail can be found in the original article in the AMRM.
- Let's start with the Silo Base.

Putting it all together - The Base

- ➤ The weighbridge and partitions need to be fitted (KRM S04 Etched Brass Parts Kit)
- The wagon shed frame feet need to be fitted into the 6 support piers (styrene tubes)
- The rear step needs to be filled, sanded and fitted to the base.
- The drain needs to have an edge fitted to make the drain deeper.
- ➤ The base will need to be given an undercoat, joints and tab slots filled and sanded to represent concrete (new or old your choice).

Putting it all together - The Sub Frame

- The Sub-Frame will need to have door holes cut in the bins.
- ➤ Down pipes will need to be fitted to all 4 Bins, made up from 1mm brass wire and the Astragals supplied in the KRM S04 Etched Brass Kit.
- The rear door will need to be fitted to the Sub-Frame (KRM S004 Etched Brass Kit).
- The front door and window and the bin doors will need to be fitted to the Sub-Frame (Bins) (KRM S04 Parts Kit).
- There is also a down pipe from the annex to the base of the silo that will need to be fitted.
- And a Ladder/ Ladder Guard will need to be fitted to the front of the silo on the right side of the Annex.
- The joints, bins and front and rear panels will need to be filled with a two-part auto body filler, using a 10mm rod to achieve a neat blended contour.
- The large joint on the sides, between the bins, needs to be filled by body filler, and can be done in a similar way to the other joints, using a 12mm dia. rod to obtain a nice even contour.
- And finally the Sub assembly will require sanding and painting then fitted in place.

Putting it all together – The Cupola, Bin Roof

- ➤ Glue the Cupola to the Sub-Frame.
- Fascia and guttering need to be secured to the cupola and bin roof. Fascia from 10"x 2" Evergreen Styrene, and guttering from small Evergreen "C" channel.
- The Cupola and Bin Roof needs to be completely clad with Campbell's Corrugated Aluminium. The cladding overhangs the silo bins by a scale 4" 6".
- The cladding comes in various sheet lengths, but my preferred option is to obtain the 12ft length, as other sizes can be cut from the longer sheets. And always start the cladding at the lowest point and clad up to the highest point.
- ➤ Ridge capping made from 8"x 1" styrene with 0.025" styrene rod for the ridge.
- Downs pipes are fitted on both sides of the Cupola, and are distributed onto the bin roof by a "T" piece. Two astragals each side secure the down pipes.
- Lead flashing can be made from masking tape, cut into thin slithers, and placed in the appropriate locations.
- Finally windows need to be fitted to the cupola.

Putting it all together - The Annex

- Fit the barge board and fascia
- > Fit the guttering
- Fit main beam and cross beams under the Annex, as well as a locating loop for the winch rope to go through
- ➤ Clad the Annex roof
- Clad the rest of the Annex from bottom to top
- Fit the down pipe (using photos for reference)
- Fit window and door after painting the Annex
- ➤ Only glue the Annex in place with a couple of dots of white glue so that it holds in place but can be removed if required..

Putting it all together - The Out loading Platform

- ➤ The Out loading platform can be modified with a pipe safety barrier if required
- The front steps can be glued to the Out loading platform, but be very careful when fitting the platform and steps to the base and Sub-Frame
- ➤ Use photos as references for various out loading platforms.

Putting it all together – The Out loading Chute, Winch and Pulley

- The Out loading chute needs to be scratch built, as per the original article.
- At this stage the pulley and winch also need to be scratch built, but this is being looked at.

Putting it all together – The Wagon Shed

- ➤ The Wagon Shed is built from plans in the original article, as well as the plans supplied on this CD.
- ➤ The 6 square styrene tube pieces (rear road) can be trimmed down to the top of the rear walls. Castings (KRM S05 Parts Kit) will be available to locate the wagon shed feet into; these castings will fit into the tubes, allowing the shed to be located and removed if necessary
- The vertical beams for the wagon shed can be made from commercially available H beam.
- The battens and purlins can be made from Special Shapes' 3/64"square brass, which gives more surface area to solder to the beams than brass angle would allow.

Corrugated Aluminium

- Campbell's Corrugated Aluminium is my preferred cladding material to use when cladding Australian buildings in HO scale. It comes in 4, 6, 8, 10 and 12 scale ft lengths, and the best value is the 12 ft packs.
- ➤I make up a template with one full sheet, marked with a thin black Pental pen. This is used to make the other sheets. I then cut the sheets with a ruler and sharp snap off blade. If small sized sheets are required, they can be cut from the 12 ft sheets.
- The material is them overlapped by 1 corrugation, and is glued to the building, using Selleys Gel Grip.
- The layering of the cladding is important. It must be layered from the bottom up, with the overlapping dimension not being all that important.
- The use of prototype photos is essential to achieve the correct look
- The material can be obtained from the retailers mentioned on the resources page.

Resources

- > Brass Section
 - > Special Shapes Brass
 - > IR Models
- ➤ Styrene Section
 - **Evergreen Styrene**
- > Paint
 - > Floquil Paints
- > Corrugated Aluminium
 - ➤ Model Railroad Craftsman
 - > The Railcar

- ➤ Local Suppliers
 - > Casula Hobbies
 - ➤ Berg's Hobbies