

Noville School Diorama Part 2 Building Design and Using the Wall Section Mould

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Moulds and Materials

The wall sections were made used the following mould:

- 1: 35 Scale Brick Wall Section Mould (1350029)

The materials we used are as follows:

- 0.5mm ply wood.
- Pre-Coloured Terracotta Casting Plaster.
- Black powder pigment.
- Water resistant PVA wood glue.

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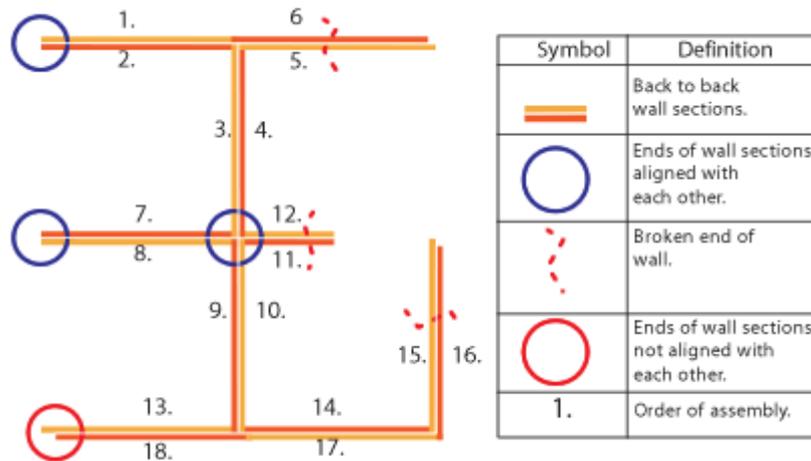
Designing the Building

Note: *At the current time we only produce one length of wall section mould. This mould was designed to allow people to cast and assemble sections of brick wall for simple structures like basic walls and corner ruins. In the near future we intend to manufacture a wall sections mould that will allow you to cast shorter sections of wall to complement the existing mould. This should allow the construction of more complex brick structures.*

We would classify the Noville School Diorama as a simple structure as it can be built with one length of wall section without the need for complex alterations.

To create the Noville School Diorama we only use wall sections cast using the current mould. This meant that the length of the walls and size of the rooms would be determined by the length of the cast wall sections. Although a limitation you should still be able to design and build some impressive models.

Note: *The height of the walls is not a problem as it is easy to break or cut the top off a wall section along any course of bricks.*

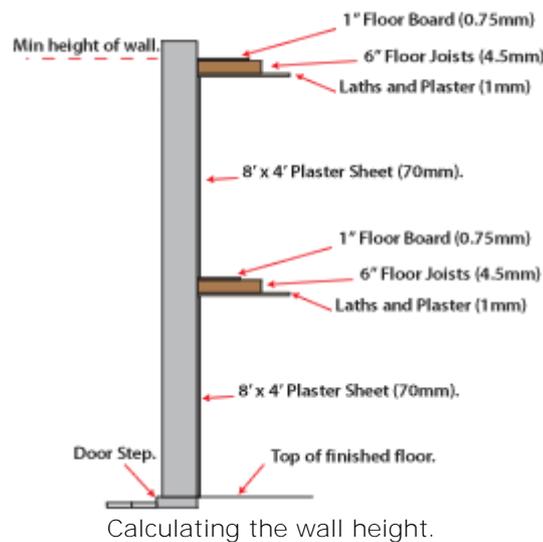


Plan view of the Noville School Diorama's wall layout.

The drawing above shows the layout of the Noville School Diorama's walls and the order in which the sections were assembled. This layout can be achieved without the need to alter the lengths of the wall sections except for where the wall ends have been demolished which are just rough cuts.

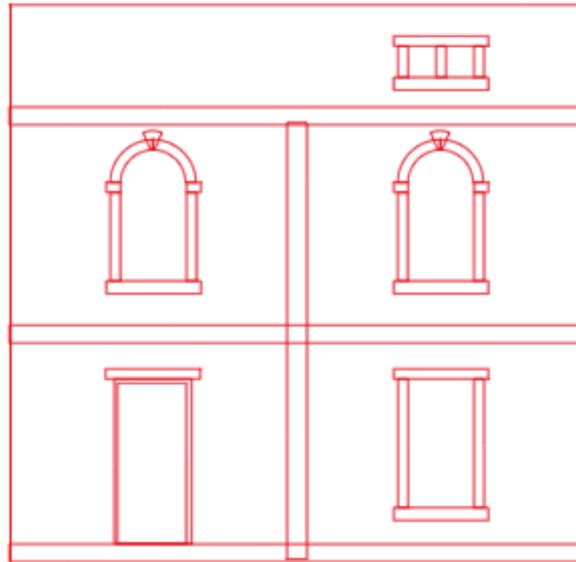
You will find that the rooms of the building are a nice size and will look to scale without being too large that the building will not fit on a shelf when finished.

Once we decided on the layout of the walls we needed to calculate their height. The method we use to calculate the height of a buildings walls (rooms with a 8 foot ceiling height) is as follows.



To calculate the wall height in 1:35 scale:

1. First decided on the finished floor level (this should be higher than the outside finished ground level).
2. Add the height of a sheet of plaster made with the 8' x 4' Plaster Sheets Mould (approx 70mm).
3. Add the approx scale thickness of a lath and plaster ceiling (approx 1mm).
4. Add the scale thickness of a 6" floor joist (approx 4.5mm).
5. Add the scale thickness of 1" thick floor boards (approx 0.75mm).
6. Repeat 2 to 5 for each floor of the building.
7. Add an appropriate amount to allow for the loft window and overhang of roof.

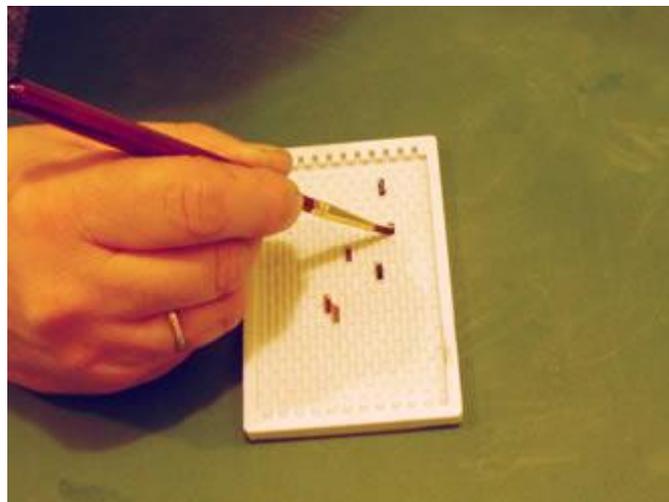


We decided on the window and door sizes then made a simple sketch to check their locations. We will make the window surrounds later using the lintels and sills mould. We used the curved curbstones (smooth side out) cast using the 5" curbstones mould for the top of the arched windows. The inside diameter of these curved curbstones will be the width of the windows.

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Making the Wall Sections

We made the wall sections using the glass method described in the Beginners Guide.



To vary the colour of the bricks we painted some of the brick cavities with some black and dark brown powder pigments mixed with water. When you fill the mould with plaster the pigments should darken these bricks.

Note: *Wall sections can distort when setting. Plaster expands while hardening, then contracts slightly just before hardening completely (the exact amount depends on the make of plaster and other factors such as the amount of water that was added when mixing). If you use the glass method and wait until the plaster has completely hardened before removing the weight and de-moulding, this distortion should be minimal. If not and the wall section has a slight curve, try placing a weight on top of it to hold it flat until it is completely dry.*

Once you have made enough wall sections it is best to clean them up and check their fit before attempting assemble. Any flash around the top edge of the cast wall section will hinder assembly.



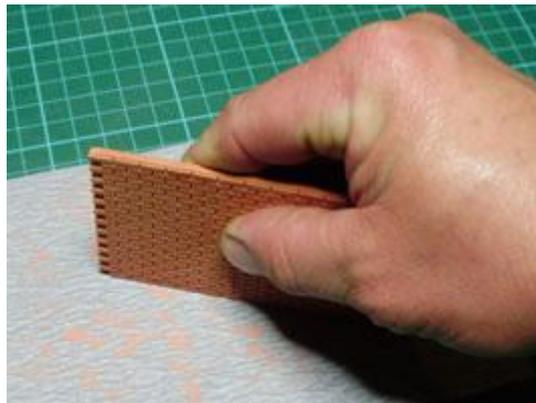
Tools we used clean and check wall section castings.

We used the following tools:

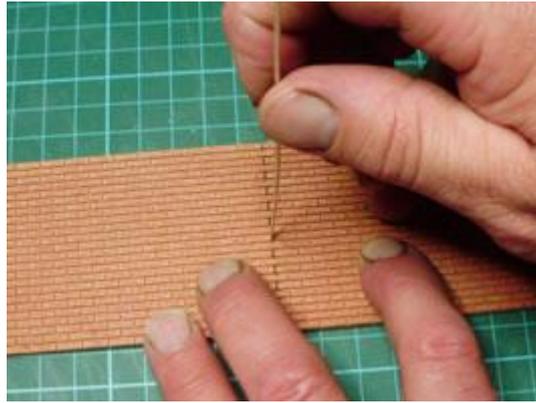
- A small diamond coated flat file.
- A small strip of 0.5mm ply wood.
- Abrasive paper.



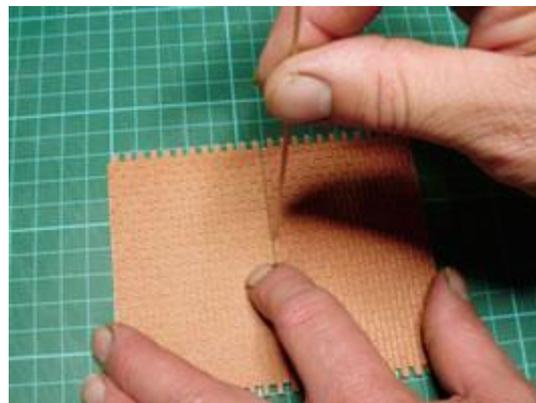
We removed any flash between the bricks at both ends with the file.



We removed any flash on the back and sides by giving them a light sanding.



We checked the gap between the wall section bricks at both ends using the 0.5mm piece of ply wood. Adjust with the file if needed.



We then checked the gap between the courses. This gap should be about 0.5mm (the same as those cast in the wall sections).

Note: *The top and bottom of the wall sections are different (one has a mortar course). Make sure you are checking the gap between a top and bottom edge.*

Tip: *Check the gaps between two wall sections then put one of them aside and check the others against it.*

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Assembling the Wall Sections

Note: *This was our first real attempt at building walls using the wall section mould. We did make a few mistakes and in the future may do some things differently. We will try to point these out as we go through the build.*



To assemble the walls:

1. With a pair of scissors cut the 0.5mm ply wood into about 10mm wide strips that are about 20mm longer than the wall is height, then cut a point on one end. We used a minimum of 2 strips for each column of wall sections (3 strips with one in the centre would be better even if it will be cut when you install the windows).
2. Put a small amount of glue on the bottom of the first outside wall section and position it on the polystyrene base (make sure to place all wall sections the same way up).

Important: *keep the glue away from the outside face of the wall sections and only use a very small amount as it could seep into the plaster and make it darker.*

3. Apply some glue to the pointed end and one side of the ply wood strip up to the height of one wall section (depending on the glue you may need to apply some to the wall section as well).
4. Use a square to hold the wall section vertical. Using the inside of the wall section as a guide, press the pointed end of the ply into the polystyrene base (about 20mm).
5. Glue the next wall section in place sandwiching the ply wood between them. Gently clamp them together.
6. Put a small amount of glue on the end and bottom of the next wall section and position it 90 degrees to the first two.
7. Repeat steps 3 to 5.
8. When you join two wall sections in a straight line, glue a couple of pieces of ply behind the joint to strengthen it. You can break wall sections and use the same method to assemble the broken parts to make cracks in the wall.

Note: *If you want to make the walls three bricks thick or a cavity wall you could use 4.25mm wood instead of the 0.5mm ply (use the 10.75mm concrete lintels and sills mould for three brick thick or cavity walls).*

We cut out the holes for the windows and doors as we assembled the building but it would be better to finish the walls first and then cut the holes out. This will allow you to make subtle changes if needed.



We clamped some aluminium angle to the wall to keep the next layer of walls section vertical and flush.

Important things to remember when building walls with the wall section mould:

- Keep them vertical, square and the faces flush with each other.
- Do use too much glue on the joints between the wall sections or get any glue on or near the outside face of the wall sections (we made this mistake and it stained the joints as you can see in the photo above). Use plenty of glue on the ply to get the strength.

In Part 3 we will be covering how to use the 1:35 Scale Lintels and Sills mould to frame the windows.

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