

# TWX-2165 3-Stall Engine Shed

## Assembly Instructions (Ross / Gargraves track centers)

Tools required for assembling this kit;

- Sharp X-Acto® knife
  - 220-grit sandpaper
  - Hobby saw (fine tooth)
  - Blue painter's tape (for holding parts together while glue is setting)
  - Small clamps (12 or more would be best)
  - Tite Bond II® wood glue
  - Cyanoacrylate glue (Superglue) and Accelerator (Kicker)
- \*\*Suggest thick viscosity superglue

The parts in this kit are attached to their respective sheets with small sprues, remove the individual parts from the sheets by cutting the sprues with an X-Acto knife, then sand the sprue off using the 220-grit sandpaper. It is important that the sprues be completely removed so as not to prevent parts from lining up and fitting properly.

Before you begin assembly of this kit we suggest that you paint the parts that will be on the interior of the structure, this will make accessing the parts MUCH easier than when the structure is assembled. The parts you should prepaint are as follows;

- A1 (non-brick side)
- B1 (non-brick side)
- C1 (non-brick side)
- D1 (non-brick side)
- G1 (side with expansion cracks)
- 5 Girders (complete step 1 before painting these!)
- 6 pcs of J1 (Concrete for the center of the tracks)

### Step 1 Girders

Locate the five loose girders that came in the kit, as shown below in photo 1

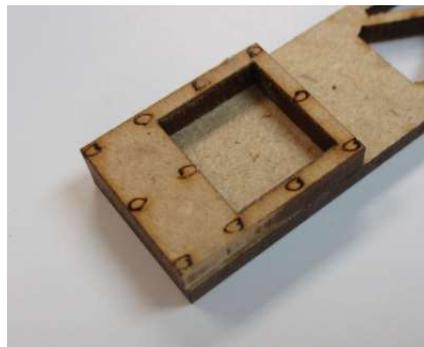


Photo 1

Two of these girders will be mounted to the end walls on either end of the Engine Shed. The remaining three will support the side walls and roof. In this step you will glue the girder bases to the bottom of two girders, but only on one side.

Locate both Sheet B's and remove all 32 of part B2.

As mentioned above, glue 4 pieces of B2 to the base of two girders, on one side only (as the other side will mount flush against the end wall). See Photo 2 below



Orient the B2 as shown above and make the bottom of B2 even with the bottom edge of the girder piers. NOTE: the small tab on the center two piers should extend below the bottom edge of B2 (as shown in photo 3).

For the remaining 3 girders glue part B2 to both sides of the bottom of all four girder piers (Photo 3).

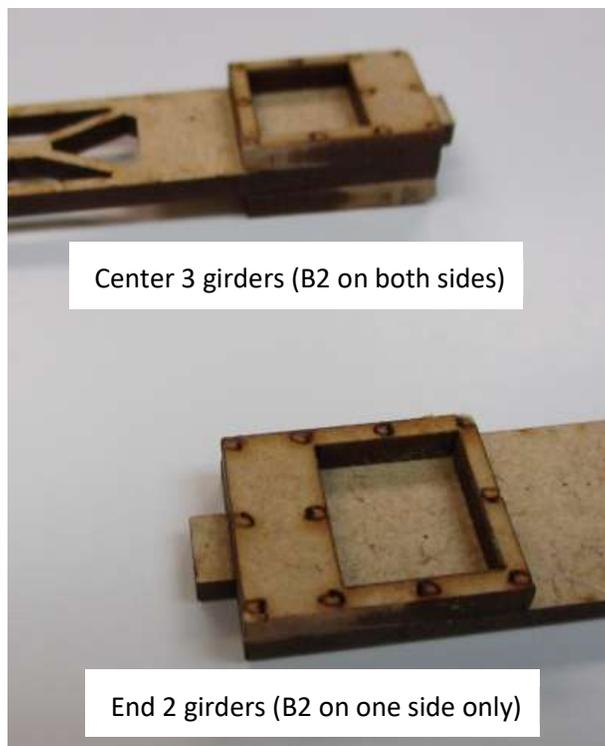


Photo 3

Once B2 has been glued to the girders you should paint these girders before beginning construction of the Engine Shed.

## Step 2 Assembling the Base

Locate the first layer of the foundation, I1 from the I sheet. The wording faces up. You will notice there is a line engraved  $\frac{1}{4}$ " from the edge around the perimeter of the foundation. The middle layer, H1 from the H sheet fits inside this perimeter line. It is imperative that H1 be perfectly aligned with the perimeter line, as this will affect the fitment of the track once the model is completed. (Photo 4)



Photo 4

Apply a liberal amount of Tite Bond II<sup>®</sup> Wood glue between the base (I1) and the middle layer (H1), ensure H1 is perfectly aligned with the perimeter line of I1. (Photo 5)



Photo 5

Place heavy weights on top of the middle layer until the glue sets. Wipe off any excess glue that may come out between the two sheets.

Now locate piece G1 from the G sheet (you should already have this top layer painted and weathered, as it will be difficult to access this area once the building is assembled). Apply a liberal amount of glue between sheet G1 and the middle layer (H1) and position G1 so it lines up with the outside edges of the middle layer. Place heavy weights on top of G1 until the glue sets. NOTE: It is imperative that G1 align perfectly with the outside edges of the middle layer (as this will affect the alignment of the 4 walls). You will notice that G1 hangs over the track spaces in the center of the floor. This is to create the appearance of concrete going all the way up to the rails later in construction. (Photo 6)

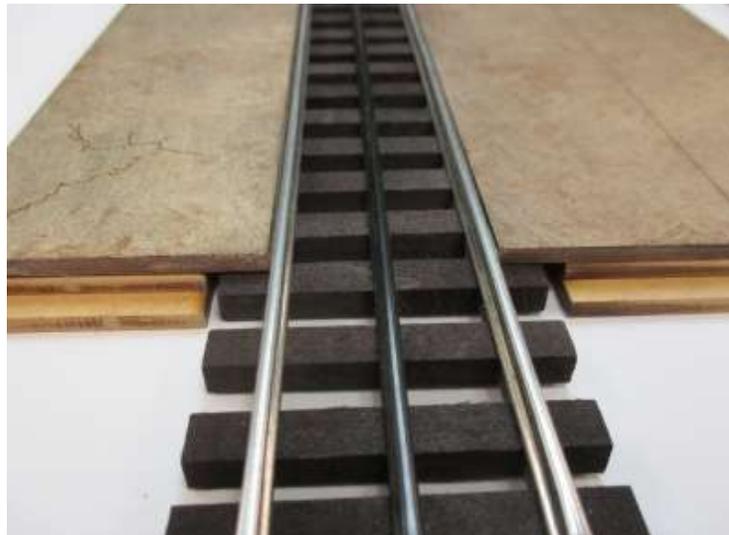


Photo 6

Please let the glue set completely before proceeding to step 3. These three pieces of material will be the foundation for the structure, it is important they be fully cured before proceeding (should take about 45 minutes for the Tite Bond II® to cure completely).

### **Step 3 Assembling the walls**

The walls of the Engine Shed are built in layers. There are 4 inner walls that interlock with the girders. Then there are 4 outer “laminated” walls that both strengthen the overall structure and complete the brick work.

Begin by locating the 5 girders you assembled in step 1 (and painted). Remove one A1 side wall from the A sheet. Using the Tite Bond II® wood glue apply a bead of glue to one side of one girder (that has the pier base on both sides; center girder). Also apply a bead of glue to bottom edge of A1 (the non-brick side, that attaches to the foundation). Using some blue painter’s tape attach the girder to the side wall and the side wall to the foundation. (Photo 7)

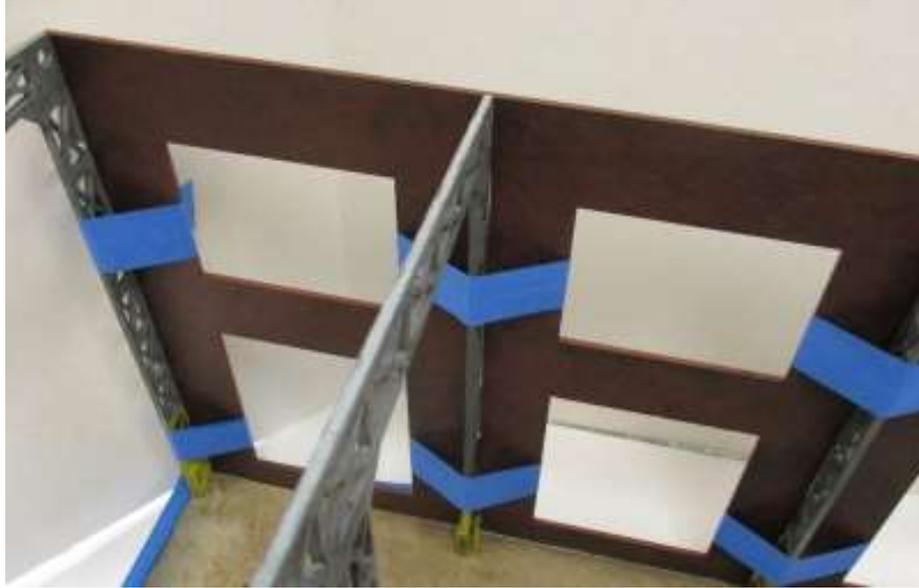


Photo 7

Use a long piece of painter's tape to perfectly align the side wall with edges of the foundation and to help hold the side wall flush against the foundation edge until the glue sets. Do this on both ends of the side wall. (Photo 8)

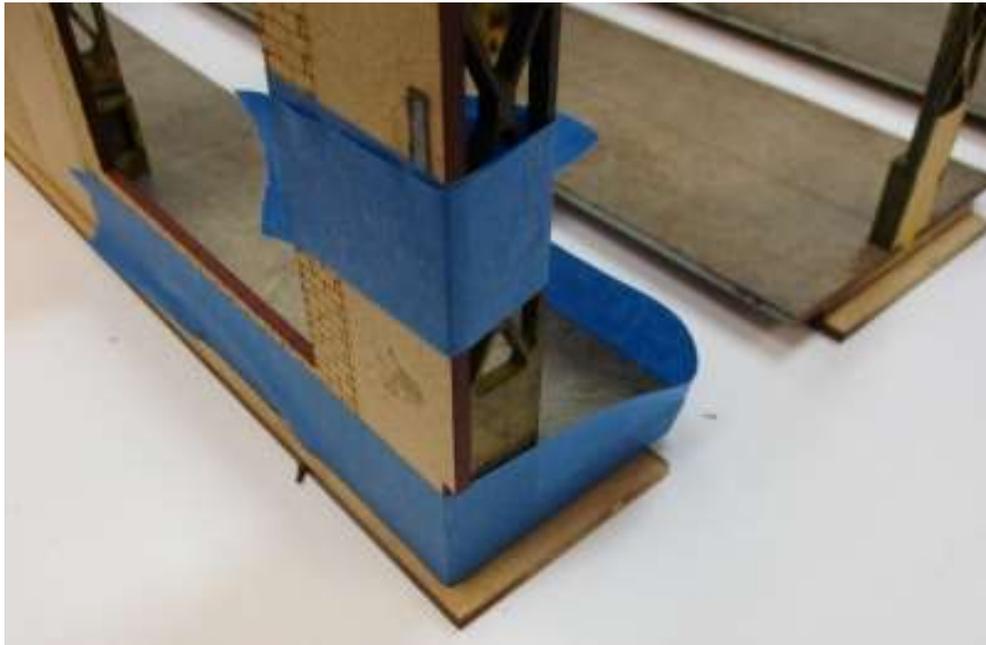


Photo 8

Once you have the center girder and side wall securely taped use some thick viscosity super glue and attach the two center piers of the girder to the foundation floor by inserting the mounting tab into the hole in the floor. Ensure the girder is pressed all the way into the slot and apply some accelerator to help it cure immediately.

Now assemble the remaining two center girders (the pieces with B2 pier base on both sides) to the left and right of the center girder. Glue the center two piers to the foundation using the super glue and kicker like you did to the center pier. (Photo 9)



Photo 9

Once the 3 center girders are taped and their bases glued to the floor locate the remaining two end girders (with the pier base glued on only 1 side). Assemble the end girders in the same manner, positioning the pier bases towards the inside of the structure (leaving the flat side of the girder facing outward). Tape these girders to the side wall and super glue the pier tabs as you have previously.

Locate the remaining Sheet A and remove the other A1 side wall. Glue this side wall to the opposite side of the foundation in the same manner. Apply a bead of Tite Bond II® wood glue to the edges of all five girders as well as a bead at the base of the wall where it mates with the foundation. Tape the girders to the wall and tape the corners of the wall to the foundation to keep the alignment on the corners tight and flush.

Locate parts C1 and D1 (the interior side of these parts should now be painted and weathered). It should be obvious which end wall goes where, based on the foundation.

Apply a small bead of wood glue to both edges of C1 where it interlocks with the side walls, as well as the base of C1 where the base intersects the foundation. Position C1 in place and use three pieces of blue painter's tape to keep a tight joint between the end wall and the side walls. (Photo 10)



Photo 10

It is important that this joint be tight, wrap the tape around the corner and through the window openings to ensure the joint stays tight while curing. Be sure to wipe off any excess glue that might squeeze out of the joint.

Perform the same assembly on the opposite end of the structure with piece D1. Again, using painter's tape to ensure the joint is tight.

Once the glue has cured, remove the painter's tape from the assembly. Use the 220-grit sandpaper and sand the joints on the corners to ensure they are smooth and there is no glue or dust that would prevent the laminate layers from laying directly against the interior walls.

### **Step 3a Assembling the stepped brick detail**

Locate sheet B and sheet C. From the B sheet remove two pieces of B3 and B4. From the C sheet remove 2 pieces of C3, C4, C5 and C6. These parts make up the stepped out brick detail on the top of the laminate walls. Remove part C2 from the C sheet. Glue one piece of C5 and one piece of C6 to the top edge of the wall. (Photo 11)

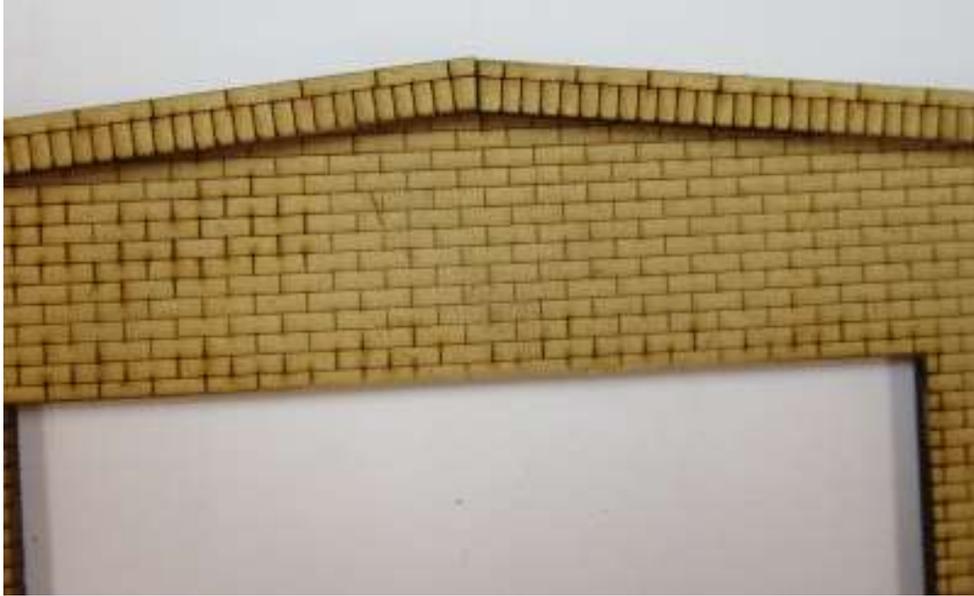


Photo 11

You will notice a slight angle on one end of both C5 and C6, The angled end goes at the peak, as shown above. Note that the vertical mortar lines go on the bottom and the horizontal mortar lines are at the top. There will be a slight overhang on the sides of the wall, leave this for now.

Next glue parts C3 and C4 on top of parts C5 and C6 as shown in the photo below. (Photo 12)



Photo 12

NOTE: the mortar lines on parts C3 and C4 should face outward and upwards!

Repeat this process on part D2, using parts C5 and C6 first, then C3 and C4, creating the same stepped brick feature. Once the glue has set on both C2 and D2 cut the excess stepped brick details even with the sides of the walls. (Photo 13)

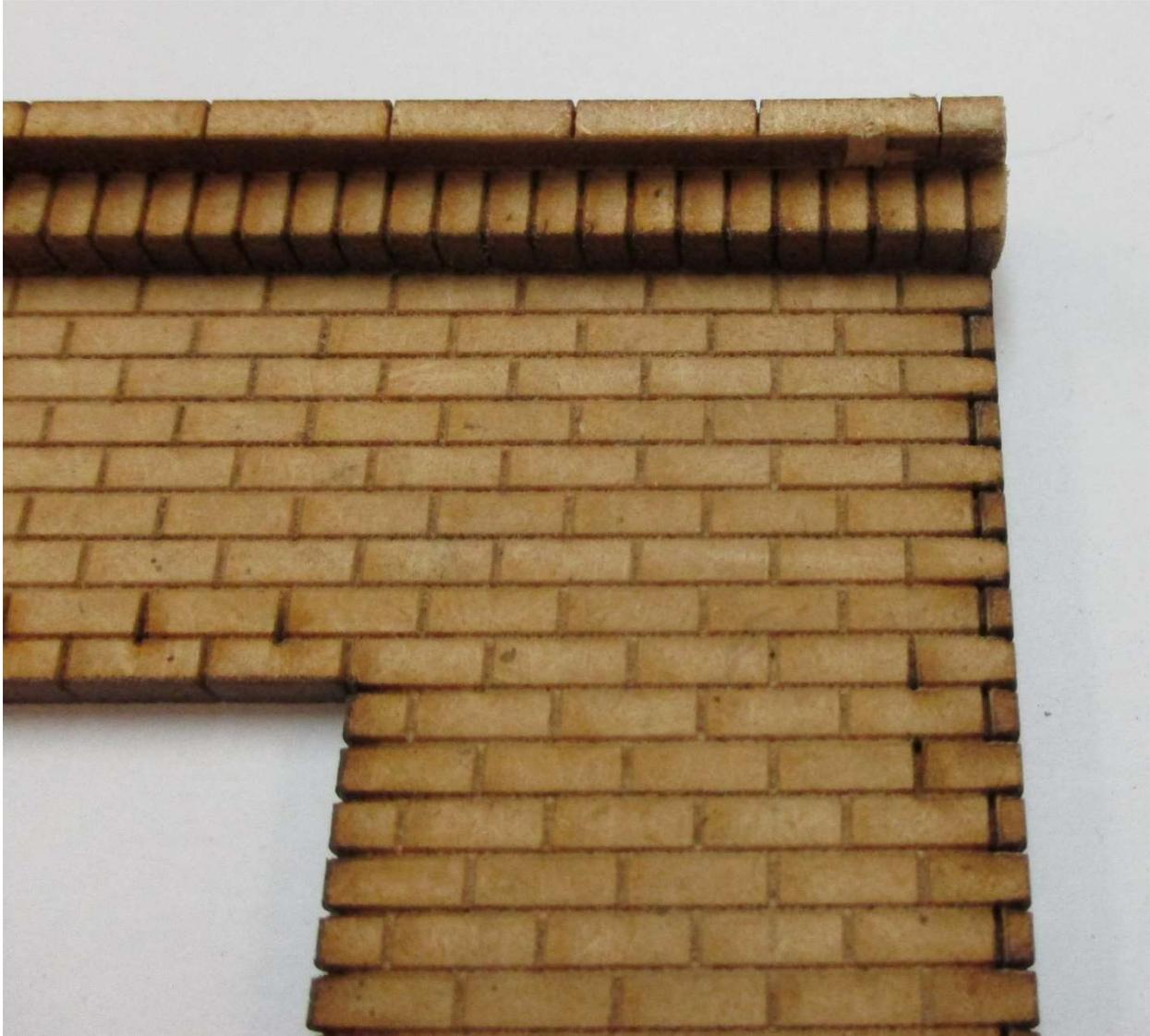


Photo 13

Assemble the stepped brick detail on the laminate side walls B1 (x2) using pieces B3 and B4. Once assembled, cut the edges flush as shown in photo 13 above.

### Step 3b Assembling the laminate walls

Start with the end wall C1, apply a small bead all over the back side (non-brick side) of this part and smear it around with your finger, to make an even film of glue. Place part C1 against the inner end wall. Using blue painter's tape securely fasten the ends of the wall against the inner wall at the top, middle and bottom of both sides. Using some small clamps, clamp the outer wall to the inner wall as shown in photo 14 below. The important part here is to get the laminate wall as tight as possible to the inner wall!



Photo 14

NOTE: The end wall should line up perfectly with the ends of the side walls (this will be important when the side laminate walls are glued on later). Make certain the end laminate wall (C2) is tight against the inner wall (C1) especially at the corners!

Once the glue has dried completely remove the clamps and repeat this process for the opposite end wall (D2). Make certain the edges on the corner are even with the edges of the side wall.

Now locate one B1 panel. Apply a bead of glue to the backside of B1 and smear it around with your finger, to create an even film of glue all over the backside. Using the same method as you did with C2 and D2, glue the side laminate wall to one of the inner side walls. Use the small clamps to ensure the laminate wall is securely against the inner wall. (Photo 15)

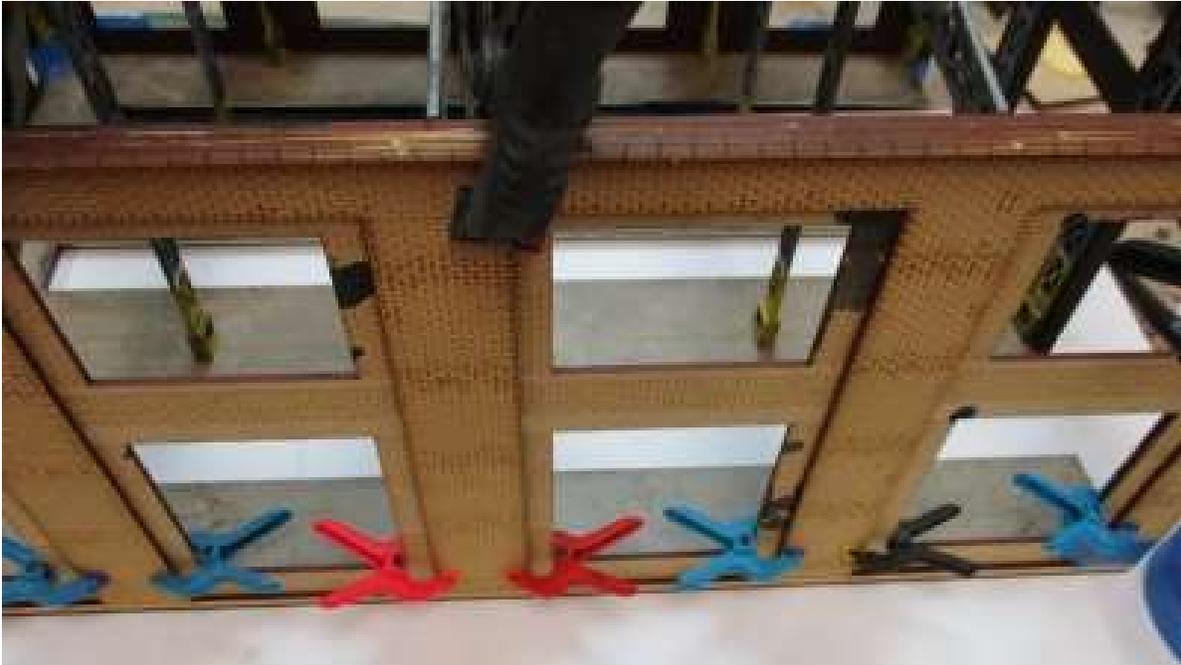


Photo 15

It is important to note that the cuts in the ends of the side wall will line up with the mortar lines of the end walls, to keep the look consistent rounding the corner. (Photo 16)

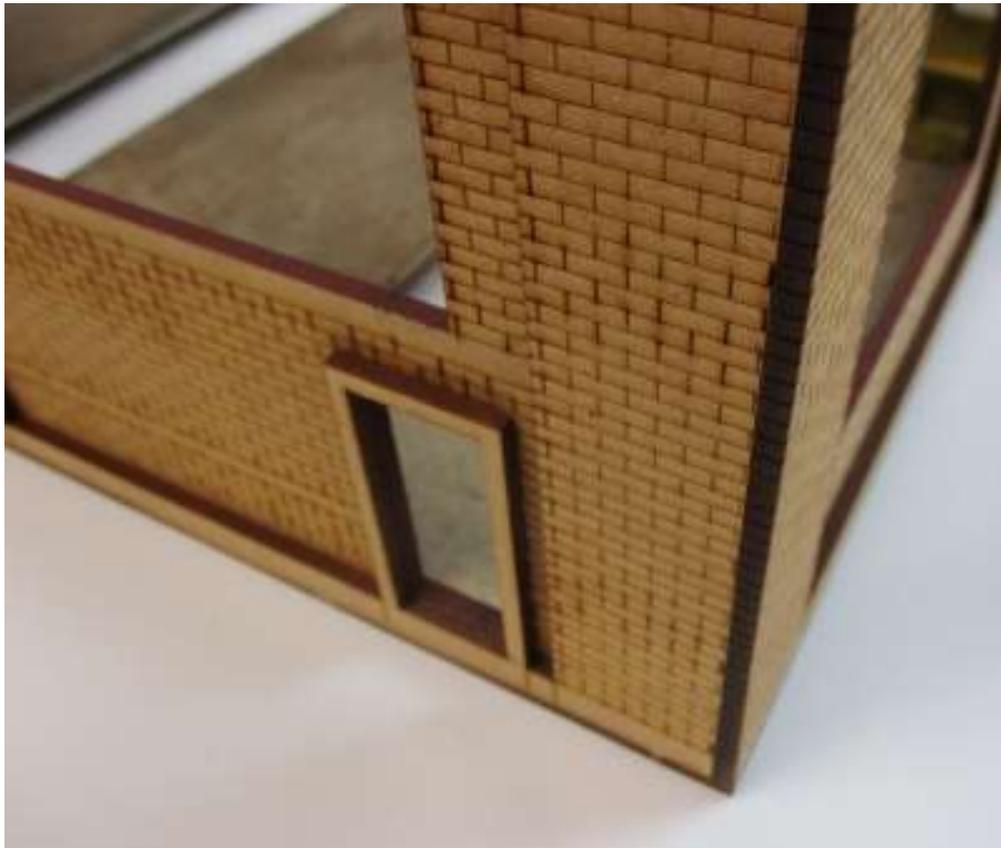


Photo 16

Use the blue painter's tape, as necessary to ensure the corner joints are tight and even along the entire seam!

The top corner of the walls, where the stepped brick is located should look like photo 17.



Photo 17

Once one side wall has cured completely repeat this step for the other side wall (B1).

### **Step 3c Securing the end girders to the end walls**

The final step in assembling the structure walls is to secure the end girders to the interior end walls. Using a couple small dabs of heavy viscosity super glue apply a couple dabs of glue against the backside of the end girders and clamp them to the end walls. (Photo 18)

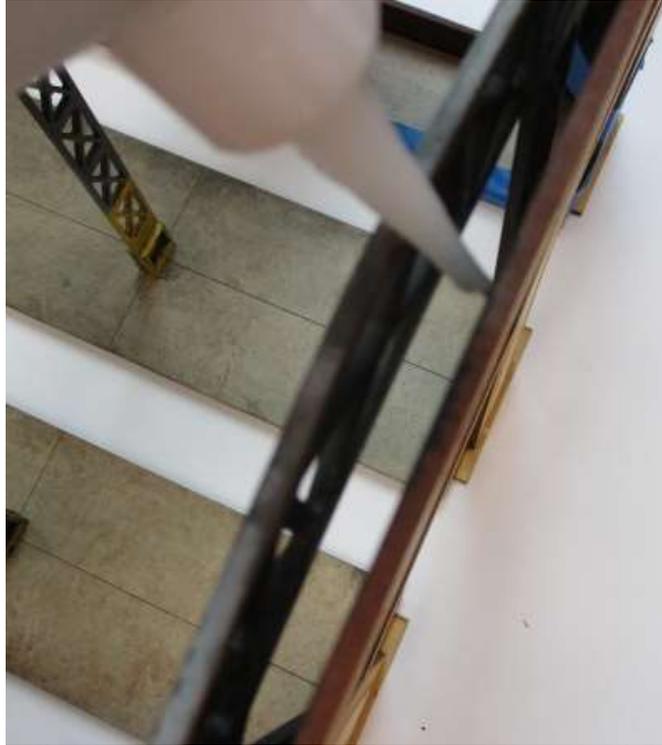


Photo 18

You can use some accelerator to help the super glue cure instantly.

#### **Step 4 Assembling the Roof**

Locate the two roof halves, these need to be prepared with the batons from the J sheet (J3 and J4 specifically). Carefully remove all the J3 and J4 batons and sand the sprues smooth. Using wood glue, glue the cut edge (the darkest edge of the baton) to the roof, in alignment with the etched guides. (Photo 19)

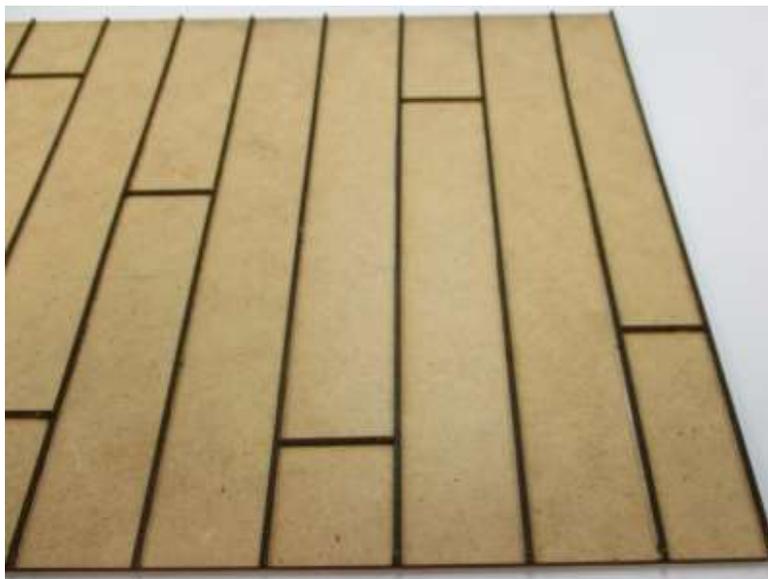


Photo 19

Glue the batons to both roof halves.

Once the batons are glued it is recommended that you sand a small angle on the ridge side of both roof halves, this will help create a better joint at the ridge between the two roof halves. (Photo 20)



Photo 20

Once the roof is assembled we used Rustoleum Textured paint to create a textured surface on the roof (which helps the dry brushing pick up a lot of detail!) and then painted it flat black. Some dry brushing was used to make the textured surface “pop”.

### **Step 5 Mounting the Lintels and Sills**

Locate sheet L and remove all the lintels and sills (L1 and L2). Sand the sprues smooth and paint as desired. The Lintels mount over top of the window and door openings and the sills mount under the window openings. We recommend you use super glue for this step, as it cures much faster than the wood glue (Photo 21)



Photo 21

It should be obvious, by the spaces that lack mortar lines, where L1 and L2 mount. (Photo 22 & 23)



Photo 22



Photo 23

## Step 6 Installing the windows

Locate the windows (Sheet F) as well as the clear plastic windows (in a separate clear baggie). There are two windows used for this structure; small and large. Begin with the small windows, remove the white adhesive protectant from the back of the window (photo 24) and apply the appropriately sized clear

window plastic. Press firmly on the clear plastic to ensure a good adhesion between the glass and the window. (Photo 25)

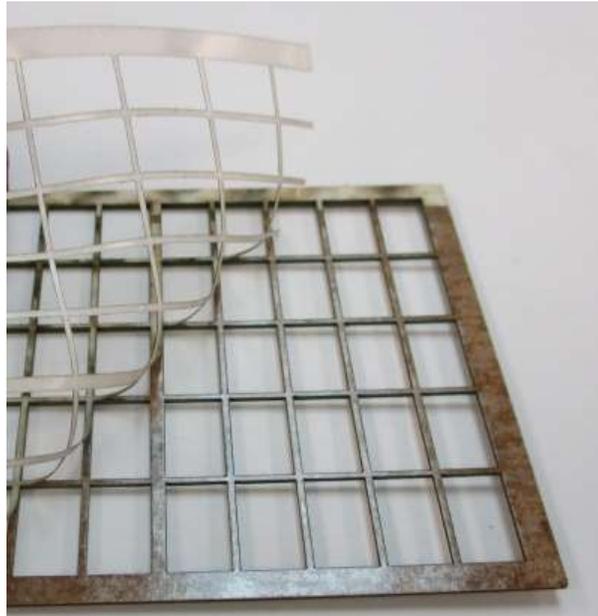


Photo 24



Photo 25

Once the 16 small windows are assembled move on to the large windows. Note: the large windows have two small windows at the bottom that can be positioned in an open position. Be sure to align the glass so these bottom windows align with the glass properly. (Photo 26 & 27)



Photo 26



Photo 27

Once all eight of the large windows have been assembled it is time to mount the windows in the building.

The windows mount inside the window openings. So, we strongly recommend you test fit the window in its respective opening **BEFORE** applying any cement.

Once you verified the fitment of the window in the opening apply a fine bead of thick viscosity super glue to the perimeter of the window and install it in the opening. Use the accelerator to set the glue once it is in position. (Photo 28 & 29)



Photo 28



Photo 29

## Step 7 Mounting the track

We recommend using Gargraves track, for the track inside the shed itself. This is because the Gargraves track does not use spikes which allows the center concrete to sit nicely against the center rail, yet provides enough clearance to clean the rails without scuffing the paint on the center concrete pieces.

Position the engine shed where you would like it to be placed on your layout. Slide in three pieces of Gargraves (or Ross) track, in between the concrete slots in the foundation. Secure the track to the layout with either glue or screws (whichever method you prefer). We recommend you be able to lift the engine shed off the layout, so we do not want to glue the foundation of the engine shed to the layout top.

(Photo 30)



Photo 30

Once the track is mounted locate 6 pieces of J2 from the J sheet. These are the concrete centers underlayment. Using thick viscosity super glue, apply a small dab of glue to each tie, very close to the center rail. (Photo 31)



Photo 31

Place piece J2 as close to the center rail as possible, ensuring that it is laying flat on each tie. Cut or break J2 as necessary to work around any track screws you have installed. (Photo 32)



Photo 32

Install the J2 underlayment on all three tracks.

Now apply a bead of super glue on top of the underlayment and attach the concrete centers (J1), which should already be painted, to the top of the underlayment pieces. Push J1 tightly against the center rail webbing, to provide adequate space for heel flanges. (Photo 33 & 34)



Photo 33



Photo 34

Here are some photos of the track installed in the Engine Shed with the concrete centers in position.  
(Photo 35 & 36)



Photo 35



Photo 36

You can use Gargraves bumpers at the end of each track, if you choose to, however this will eat up valuable space inside the Engine Shed. Instead you can use TW Trainworx Wheel Stops (TWX-2140) which take up significantly less space and look very prototypical too.

The final step is to place the roof on top of the shed. We designed the slope of the roof to be very minimal to keep the roof pieces in position without gluing them and allow you to remove them to gain access, if ever necessary.

You can add lighting to the engine shed using LED strips, should you desire. There are holes already in place on the girders to accommodate the wires. (Photo 37)



Photo 37

Below are some photos of our 3-Stall Engine Shed for Ross/Gargraves track centers. We hope you enjoyed this kit and that it will see years of profitable revenue service on your model railroad empire!









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