Six Stall Roundhouse

Instructions for Assembly of the HO Scale Six Stall Roundhouse

Roundhouse Kit Contents:
18ea. Roof Pieces
12 ea. 1/16” Parts Sheets
9ea. 1/8” Parts Sheets
12ea. Floor Pieces
1ea. 1/4” x 6” Tubing
Instructions and Drawings.

Thank you for buying this kit. Please read these instructions completely before beginning and take your time. Allow parts to dry after gluing, and do not try to build this in one night.

Drawings of all parts have been included for ease of part identification. Part quantities are in ( ) on the parts drawings. We recommend sorting all of the parts so as to familiarize yourself with them. This will prevent using the wrong part by mistake as many are very similar in shape and size.

If by chance a part is missing or broken please contact us indicating the kit name and part description and we will send you a replacement.

You will need the following items to assemble your model: Sharp hobby knife, razor saw, file, fine sand paper, tweezers, modelers putty, paint (see “painting your model”), paint brushes and glue (see “Gluing acrylic”).

Removing Parts

To remove parts from their sheets, press against the part and it will snap off. You will then want to sand or file the edge smooth of the small burr left behind. Where ever possible the part is attached at a point that will not be visible once assembled. Some parts are very fragile, care should be used in handling them.

Gluing Acrylic

Always glue acrylic in a well-ventilated area, and read the manufacturer’s label for instructions.

We recommend using Tenax-7R by Hebco or Plastruct brand “Plastic Weld Solvent Cement” (PPC-2 or PPC-16) or “Bondine Solvent Cement”(Bond-2 or BOND-16). Tenax-7R comes with a dispenser and Plastruct sells a Solvent Syringe (HT-8 or HT-10) and various other solvent dispensers. Most hobby shops carry these products.

Acrylic must be glued together using a solvent that will melt the two edges and literally fuse them together. To do this, place the two pieces to be joined together and run a bead of solvent down the edge. Capillary action will suck the solvent into the joint and after several seconds the pieces will be fused. The tighter the pieces are held together, the better and cleaner bond will be obtained. After only a few
minutes the pieces will be strong enough to work with. The bond will be completely dry within twenty four hours using the above-mentioned products.

Solvent can be dispensed two ways.

Typically the solvent comes in a small bottle with a brush in the lid. The brush allows you to dispense a drop or two of solvent at a time.

You may want to use a polyethylene bottle or syringe with a blunt needle dispenser. This allows larger amounts of solvent to be dispensed quickly and cleanly. Be sure the bottle you are using is approved for the solvent you are using or you may melt through it. Please contact CMR if you wish to purchase a glue bottle and can not find one at your local hobby shop.

When gluing metal rail to the floor of the roundhouse Cyan Acrylate or Super Glue should be used.

**Painting your Model**

Before painting your model you may want to fill any seams or cracks with modelers putty. Allow this to dry overnight, then sand or file the seams smooth.

We used acrylic paint on our model. First we primed all the parts with Krylon brand spray primer. Some parts were painted with “Polly Scale Acrylics” paint which is available at most hobby shops. Always test compatibility of your paint with the plastic by painting and testing a small area first.

We have had great success with Krylon Brand Camouflage paints which come in a range of colors that look like stone and concrete. We especially like Camouflage Khaki. These are available from Sherwin Williams paint stores as well as your local hardware stores. You will probably have to ask and have them order the paint for you.

To paint the window frames, peel the paper backing off of the window frames leaving the paper on the panes in place. Spray paint the windows frames the color of your choice. Do not get any overspray on the rear side of the windows. Be sure the paint is opaque, you may need two or three coats. Once the paint is dry, peel off the window panes.

Paint the building white or concrete to simulate stucco or poured concrete.

Paint the window frames and doors black, grey or green.

Paint the floor concrete.

Paint the rooftop black.
Planning your Roundhouse

Our prototype was a poured concrete roundhouse that was built in the 1940's to service large modern steam locomotives. It was then used to service diesels and passenger coaches until the end of its life. It was in service until the 1990's and then demolished.

In the instructions we refer to the stall lengths as 90', 105', 120' and 135'. These lengths correspond to our turntables of the same lengths. The stalls of the roundhouse are actually slightly longer and should accommodate any locomotive that will fit on the same size turntable. The front wall of the roundhouse should be 12 5/8" from the center of your turntable. This remains the same for all size turntables, the distance from the front of the roundhouse to the turntable lip will vary depending upon your turntable size.

Generally turntables had at least two lead tracks feeding them. The lead tracks usually had coal, sand and water service on them. There usually would be a track lined up opposite the lead tracks so that a locomotive could drive across the bridge without turning. These tracks were often longer than the bridge to accommodate locomotives or rolling stock too long to turn on the bridge. One of these was usually left outside and had a crane servicing it. There is not much point in building the roundhouse stalls longer than your turntable bridge except for any stalls into which you can drive directly across the bridge.

In addition to the roundhouse tracks there were usually numerous yard tracks used to store maintenance equipment and junkers.

The tracks exiting out rear doors could lead back to the layout or lead to additional service facilities such as car shops exterior cranes or wash racks.

If you want to build this as a brick round house with a concrete substructure, you may laminate Plastruct brick patterned styrene to the wall parts using mat tac adhesive. This is available from most hobby shops. Do NOT glue the patterned sheets to the walls as this will cause them to curl.

Choosing a Size

In planning your roundhouse, you must decide how large a roundhouse you want to build. This kit includes enough material to build a six stall round house. You can build as many stalls as you wish and combine kits to build more. The stalls can be built 90', 105', 120' or 135' long. You can also build some stalls longer than others. For instance you may want to build a five stall roundhouse with two 90' stalls and three 105' stalls.
Many of the parts are scored so that you can “cut” them down in size to accommodate varying size stalls. On the part sheets it is indicated where to break the parts for each size stall. We recommend modifying the pieces as you go along. This will help to prevent you from making a mistake.

There are several ways to “cut” the parts. We prefer the snap method as it is fast and easy. This is not something you can be timid on so a practice piece is included. To “snap” place the part over the edge of a straight edge, like the edge of your work bench, with the engraved line facing up and snap the unwanted portion off by bending it down quickly. Then file the edge flat if necessary. For small parts grasp the part to be removed with square edge pliers flush along the break edge and snap it off.

If you do not like the snap method, you can also cut the parts on a miniature table saw or with a razor saw.

Make sure during assembly that you have any remaining score lines facing inside the model so that you will not see them.

The “Problem” with a Roundhouse

The problem with roundhouses is that they are... round. This always makes it difficult to keep all the parts “square”...err...“round”; as a result when it comes time to put on the roof it maybe too tight or too loose. Use the roof parts from the very beginning to test fit as you go along and this problem will be minimized. It is very important that the roundhouse be built on a flat surface, and that the initial construction of the floor and support beams be true. So please take a little extra time here and you will profit from a much more enjoyable modeling experience.
Floor Assembly

Make sure that you have a large flat surface to assemble the floor on. It should be large enough to accommodate the entire building. It should also be at least 3/4" deep to accommodate the pits. Edge glue the front and rear floor sections for each stall together. You may decide to have an additional inspection pit in the rear of the building if you wish. Remove the inspection pit floors and set aside. If you are not making the stall 135' long, break off the floor sections to the appropriate length. Next edge glue the stall floor sections together, making sure that they are properly aligned. The lines across the floors should line up, and the beam holes should align as well.

You will need to cut holes in your assembly board to accommodate the inspection pits. Trace the pit openings onto your board and cut them out allowing some extra room while leaving as much surface as possible to support the floor.

Glue the four inspection pit walls together around the pit floor piece, with the short walls overlapping the long ones. The long walls should be angled a little so that they are farther apart at the top. This will make installation onto the bottom of the floor easier as the fit will not be as critical. You can alter the length of the rear pit to accommodate your stall length. Glue the inspection pits in place on the underside of the floor. Place the floor back on your assembly surface with the pits hanging down into the cut out holes.

Do not fill the lines in the floor, concrete floors have expansion joints in them, so they will look natural.

Make sure the entire floor assembly is perfectly flat, allow the glue to dry overnight. Paint the floor concrete color.

The rail in the roundhouse does not rest on ties, but instead is attached directly to the floor. Glue rail (not included) to the building floor along the engraved lines using CA. Place the glue on the rail, and work your way forward about four inches at a time bending the rail down as you go. Allow the rail to extend out the front of the building an inch or two so that you have some rail to mate to. If you are going to use the rear doors you should also let the track hang out the back of the appropriate stalls.
Completed floor with support beams being installed. Note that the first beam is single thick, while the rest are double thick.

Beam Support Assembly

On flat surface glue the beam supports together as shown in the above diagram. The front beam support edge glues into the notch on the center beam support. If you are building a shorter version of the building break the rear beam support to the correct length, discard the rear portion, and edge glue it to the back of the center beam support.

The beams in between the stalls are double thickness, the two on the outside walls are single thickness.

Leave the two end wall beam assemblies aside and glue the rest up in pairs so that they are 1/4" thick.

Paint the beam assemblies white or concrete and glue to the floor. The notches on the bottoms of the beams fit into the holes in the floor. The beams should be flush with the front and back of the floor. Be sure each assembly is perfectly square with the floor. You may want to test fit the front and rear walls as you go along to be sure everything is square.

If you plan to install lights hanging from the beams this is the time to do it. We like to use 1.5 volt bulbs with brass shades available from Miniatronics.

Note for modelers building a multi depth roundhouse. The beam support between the stalls where you change depth should have a beam of each length used. The long end becomes the end wall on your longer stall.

Multi depth beam support.
Window Assembly

The windows in the kit have a brown paper masking on them. The masking will protect the panes and keep them clear during construction and painting. Peel off the paper grid between the panes leaving the paper on the window panes in place. Next glue the window frames onto the window glass being careful not to get too much glue on the paper covering the panes. Once dry lightly sand the edges and surface of the window frames.

Note: the clear story windows do not have a separate frame.

Spray paint the windows frames the color of your choice. Do not get any over spray on the rear side of the windows. To be sure the paint is opaque you may need two or three coats. Once the paint is dry, peel up the window panes. The frames and lines between the panes will be painted and the panes will remain clear. You will most likely want to then paint a muddy wash over the windows to muck them up a bit.
Wall Assembly

The walls have engraved lines on one side of them. These lines are for cutting to shorter length or for alignment of the windows. These lines should face inside of the building. Glue the window sill attached to the clear story wall section onto outside bottom of the window opening. The narrow edge is the bottom of the wall. Do to the way the laser cuts the acrylic the cut edges are slightly angled, glue the sill on so that it angles slightly down and away from the window. Paint the front walls and the clear story walls white on both sides. Glue the windows onto the rear of the clear story sections, be sure to get them perfectly centered. There should be a 1/8" space on either side of the rear of window. Do not glue the wall cap on at this point.

Glue the front walls and the clear story walls to the building beam assemblies. The wall sections should meet in the middle of each beam support, and the ends should be perfectly flush. The walls attach outside the floor and go all the way to the bottom of the floor. You may want to test fit the front roof sections as you install the front and clear story walls. The front roof sections fit between the front of the clear story wall and the back of the front wall and rest on the beams. You can place them in during wall construction to help keep things aligned, and then remove them for painting and final assembly.

Make the rear walls the appropriate size for your model. Glue the attached window sills in the bottom of the window openings. Paint the wall sections white on both sides. Glue the rear windows in place. Decide which stalls use the rear doors and which have windows.

Glue the rear walls in place onto the building beams. The walls should meet exactly in the middle of the beams except at the corners of the building where the end walls should be perfectly flush with the edge of the last beam. Glue two corner trim pieces over each
The walls have been installed, as well as the wall caps on the side walls. Roll up doors are also in place.

Note for modelers building a multi depth roundhouse. You will need to shorten the side of the rear wall which butts up to the longer stall, and leave the trim hanging 1/16" off the longer wall.

Edge glue the three side wall sections together. If you are making the 90' version you will not use the rear wall section. Cut the walls to the appropriate length. Attach the trim so that it is flush top, bottom and front and extends 1/16" off the rear end. Glue the attached window sills in place. Note that the upper windows do not have sills. Paint white on both sides. Glue the windows and side doors in place. There are engraved lines for placement of the windows. Make sure that the windows do not interfere with the support beams.

Glue the side walls to the sides of the building beams. There are engraved lines on the side walls for position against the beams. The side walls will overlap the front and rear walls and have a dove joint with the trim on the rear wall. Fill and sand these joints with modelers putty.
Roll Up Doors

Our model features roll up doors. Usually the doors would be left open. Install the roll up door pieces so that they hang down in varying lengths but are high enough to drive a locomotive under. Make sure the roll up doors do not extend above the top of the beams or it will interfere with the roof. Install the rear doors at the height you like. You can cut the doors down shorter if you want to have them in the up position.

Roof Assembly

The roof is large and on the prototype it was tar. This is not terribly interesting visually so you will want to add some patches and texture. We put modelers putty on in places with a spatula to simulate patches. Then we painted the entire roof dark grey and then went back and painted on patches and repairs with different darker shades of grey.

The roof can also be treated as a tar paper roof, by laying strips of masking tape across it in 3/4" strips slightly overlapping. The strips should be parallel with the end walls and meet at angles along the roof seams. Add patches with squares of tape. Before painting wash the entire surface with diluted white glue to keep it from pealing up later. Then paint and weather.

Glue the front roof pieces in place. They will rest on the beams, and butt up to the clear story and front walls.

Glue the wall caps onto the top of each wall section. You will need to shorten the rear wall caps if you are building a shorter version of the roundhouse. Some fitting and cutting may be required. A razor saw works well for this. For the front and rear wall caps, start in the middle and work your way out to the sides.

Place but do not glue the rear roof section on top of the beams. You will need to decide if you want to glue all of these in place or leave access to the interior. For the best visual realism you will want to glue them in place, fill the seams and repaint. You most likely will also need to fill gaps where the roofs meet the walls, as it is almost impossible to get these perfect.

Build the roof stacks. Glue a 1/4" x 3/4" piece of plastic tube to a stack base. The base should be at a slight angle to the stack so that when placed on the roof it is square. Glue up the three circles that make the stack top and glue to the top end of the tube. Paint the stack black or silver and glue to the roof. The stack should be at the rear end of the stall where the locomotive stack would align with it. The tender of the locomotive would hang out the front door. As locomotives
produced tremendous amount of heat they rarely would have closed the doors except in extreme conditions.

**Final Building Assembly**

Touch up any paint and then weather the building. There would be heavy soot deposits over the doors and the structure in general would be pretty grimy.