Turbine Hall

Instructions for Assembly of the Turbine Hall for the Power Plant

Kit Contents:

122 ea. white 1/16" acrylic parts
32 ea. clear 1/16" laser cut acrylic parts
2 ea. cast resin turbines
3 ea. cast resin roofs
2 ea. styrene stair
2 ea. styrene ladder
2 ea. styrene railing
1 sheet acetate

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

Drawings of all the parts have been included for ease of part identification.

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

You will need the following items to assemble your model: Sharp hobby knife, file, paint (see "Painting Your Model"), paint brushes, glue (see "Gluing Acrylic"), modeling putty, masking tape.

About the Kit

The Turbine Hall contains steam powered turbines that spin generators to produce electricity. Steam is provided by a Power Plant, typically located near by. Spent steam is then cooled and condensed and returned to the power plant to convert back into steam. The Turbine Hall is designed to sit next to the CMR Power Plant. Steam pipes would connect the two buildings either above or below ground. These may be modeled with simple plastic tubing. Generated electricity would be sent to a transformer station. There are many transformer station kits on the market which may be used to support the model if desired.

The kit is built up in modules labeled as *units*. There are two units that stack on top of each other when completed to create the building structure. Parts are labeled in the instructions inside

parentheses. The first number is the unit number and the second is the part number in that unit. For instance (2-6) would be part six in unit two.

Many parts have engraved details on them. Be sure that these are facing out when gluing the parts together. It is easy to install these backwards by mistake.

Gluing Acrylic

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

We recommend using Plastruct brand "Plastic Weld Solvent Cement" (PPC-2 or PPC-16) or "Bondine Solvent Cement"(Bond-2 or BOND-16). Plastruct sells a Solvent Syringe (HT-8 or HT-10) and various other solvent dispensers. Most hobby shops carry these products or they may be ordered directly from Plastruct.

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. 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. These may be purchased from CMR.

For this model, glue the windows into each building unit using super glue (CA). We also recommend using white glue for attaching some parts (where noted) because of its slower drying time and ease of cleaning up any excess.

Preparing Your Model for Painting

Lightly sand all parts to remove the raised edge created during the laser cutting process. In order to hide any seams use "hobbyist putty" such as Green Squadron modeling putty. Do this in a well ventilated area. Apply the putty over the seams; allow to dry overnight. Once the putty has dried use a sanding block to smooth. You may need to apply a second coat of putty and sand again.

Sometimes it is necessary to sand or file the tabs slightly in order to get them to seat themselves into the slots. This is due to slight variations in acrylic thickness. If the tabs are not fitting into the slots you may need to file them back at an angle to fit properly.

Painting Your Model

For our building paint scheme, we used Krylon spray paints which are available in most hardware stores or directly from Sherwin Williams Paints. We also used "Polly Scale Acrylics" for details and weathering. These are available in most hobby shops.
Always test compatibility of your paint with the acrylic by painting and testing a small area first. Alcohol can cause acrylic to crack and "shatter". Do not use alcohol to clean the parts or alcohol-based paints. If you apply washes to your building we recommend using a water-based wash.

If you plan to light your building's interior, we recommend that you prime the building inside and out. This will prevent the walls from glowing.

We spray painted the building khaki. Unit 1 interior is gray, and Unit 2 interior is white. We then hand-painted the engraved brick Polly Scale "Mineral Red", and the sills Polly Scale "SP Lark Dark Gray". Once dry, we made a khaki wash and applied it to each wall so the mortar lines would show. The building units were laid flat with a wall facing up and the wash was applied and allowed to dry. The unit was rotated to the next wall and the process was repeated, and so on. The turbines are painted Polly Scale "Glacier Green", and the railings were painted gray.

If you wish to weather or air brush your building, do so before installing the windows.

We spray painted the windows, doors, and skylight structures flat black on both sides. Once dry, a Polly Scale "Pacemaker Gray" wash was applied to the front of each piece to bring out the engraved details. The cast skylight rooftops were painted gray and then had a Polly Scale "Rust" wash applied so they would mimic an old metal roof.

The rooftop was painted flat back and then had a brown wash applied.

Window Glass

The windows for the main structure are clear acrylic. There are engraved numbers on each piece to correspond to the window frame that it belongs to. Align the two parts carefully making certain that the part number does not show through the window frame. Use solvent glue to adhere these parts together. Use super glue (CA) to attach the assemblies to the building.

Acetate is provided for the skylight windows because of space constraints. It is advised that you cut the acetate to fit behind the skylight windows prior to assembly. It will be more difficult once the pieces are installed and cannot be traced on a flat surface. Attach the acetate windows to the skylights using super glue (CA).

Resin Parts

Due to the casting process to create the resin parts, these parts should be throughly cleaned with soap and water prior to painting to remove any mold release agent. This will prevent the paint from resisting.

Assembling the Units

This structure is symmetrical with the exception of the two long sides of Unit 1. As such, most of the wall parts are identical. The two short sides will be referred to as the "end" walls. The two longer sides will be referred to as the "turbine" and "generator" sides. This orientation is important to the relationship of the turbines to the main power plant structure. Figure 1 shows base part (A) face up with the first set of wall parts ready to install into their appropriate places.

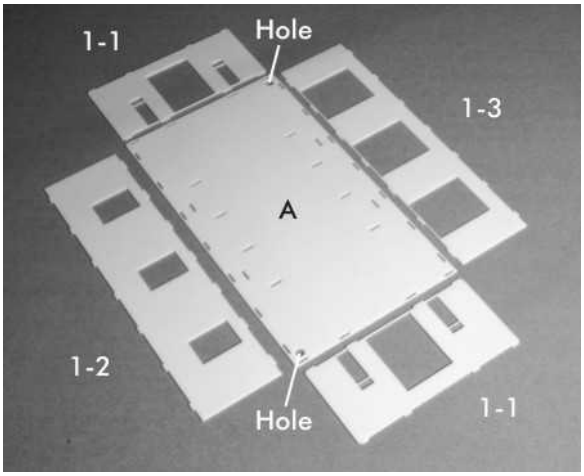


Figure 1

Please note that all pieces referred to as bases and tops (parts A-D) should have the part number facing up during assembly unless otherwise noted.

Unit 1

Begin by taking base (A) and laying it flat on your work surface with the engraved part number facing up and in the front right corner of the piece. This will position a small hole in the back right and front left of the part. These holes will line up with holes in part (B) that may be used to thread wire through the model if you want to light it. Insert the tabs of one "end" wall (1-1) into the slots of part (A) and glue in place (see Figure 1 for orientation). Note that the tabs on the top and bottom of the wall parts are different sizes, and the engraved side of the part should be facing out.

Working clockwise, next insert the tabs of the "turbine" side (1-2) into the slots of part (A) and glue in place. The two walls should meet and be glued at the corner. Insert the tabs of the other "end" wall (1-1) into the slots of part (A) and glue in place. Then, insert the tabs of the "generator" side (1-3) into the slots of part (A) and glue in place to form a box. Make sure to glue all the corners together. You may test fit part (B) to make certain that the walls are square, **but do not glue** in place. See Figure 2.

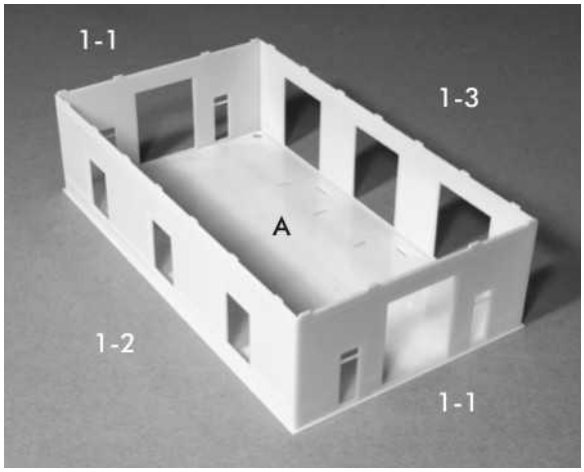


Figure 2

Assemble the condensers, parts (1-4) and (1-5). They are positioned around the engraved lines on part (A). Glue part (1-4) in the outside row of slots on one of the short sides. Attach one part (1-5) to either end of part (1-4) at a right angle using the slots on the short sides of part (A). Complete the box by gluing a second part (1-4) between parts (1-5). Make sure all tabs are seated properly and all joints are square. Glue all corners together. Repeat on the other side of part (A) to form a second box. See Figure 3.

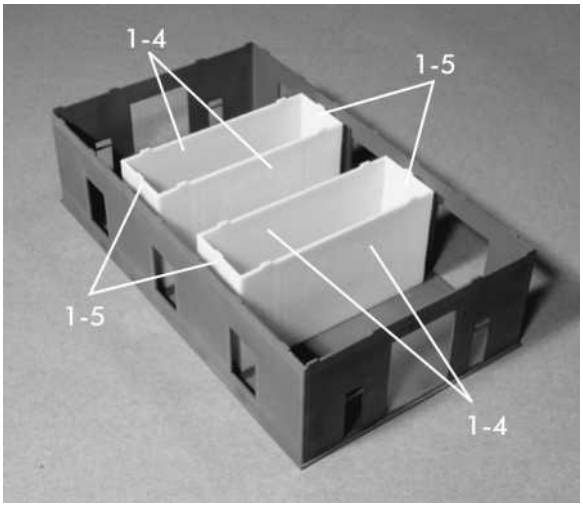


Figure 3

Fill and sand the outside corners of the assembly if necessary (see "Preparing your Model for Painting")

For ease of identifying parts for the instructions, we have been painting the parts gray once they are installed. At this point, however, we recommend that you also prime your assembly gray. Once the top (B) has been glued on in the next step, it will be difficult to paint the interior walls of Unit 1.

To keep the interior gray, tape off the wall openings of the unit from the inside.

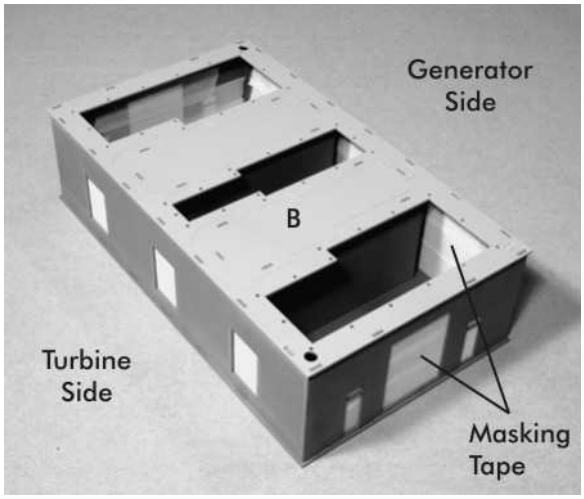


Figure 4

Prime part (B) gray and paint khaki on both sides. Once dry, insert the top tabs of the assembly into the slots of part (B) with the engraved part number facing up. Check that all the tabs are seated properly and glue in place. See Figure 4.

Cover the top of part (B) with tape. Paint the unit khaki. Once dry, remove all the masking tape. See Figure 5.

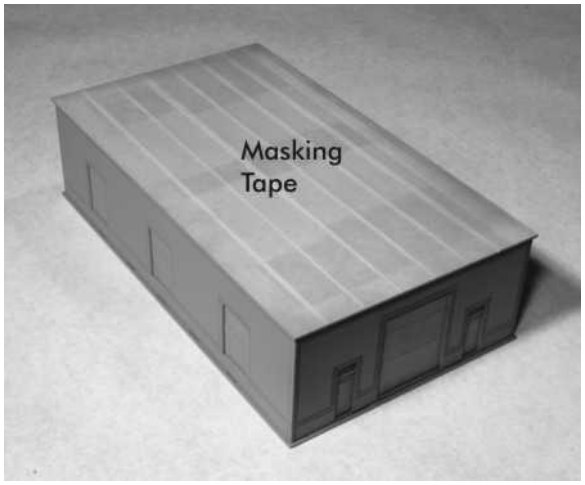


Figure 5

Once dry, remove all tape. Finish the unit by painting the brick and sills. Applying a wash and set aside to dry. See Figure 6.

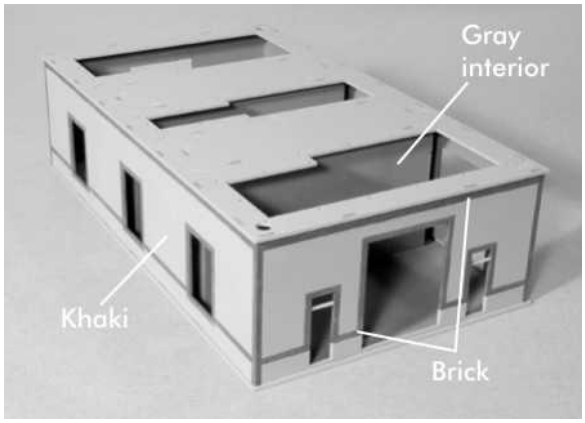


Figure 6

Paint the door parts (1-6) through (1-8) and then apply a light wash. When dry, glue the glass behind each piece using the corresponding part number engraved on each part.
See Figure 7.

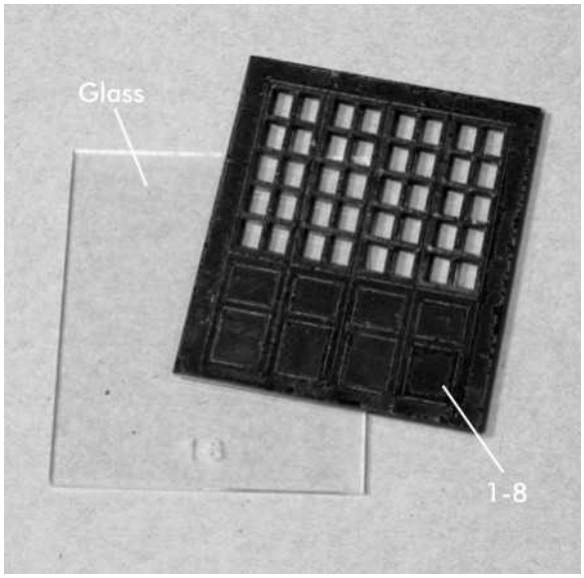


Figure 7

Glue window assemblies behind each the walls of Unit 1. Attach the center doors on each of the long walls first, as that area will not be accessible when all of the doors are in place. Finish installing the remaining doors. See Figure 8.

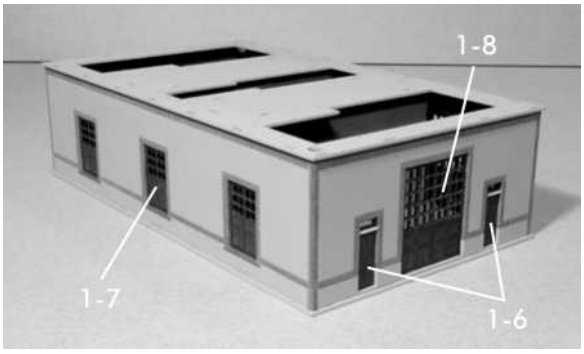
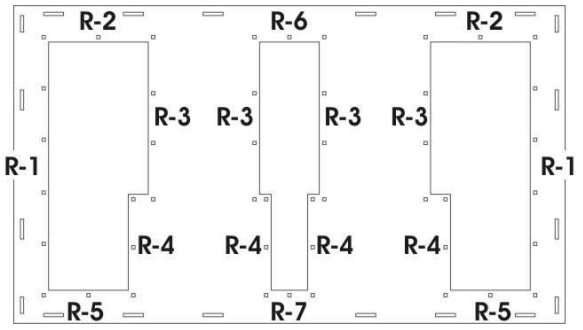


Figure 8

Prime and paint the railings gray. Once dry, glue into place using the slots on top of part (B). It is recommended that you use white glue for the tabs and liquid glue to connect the corners of the railings. Consult the diagram below. See Figure 9.



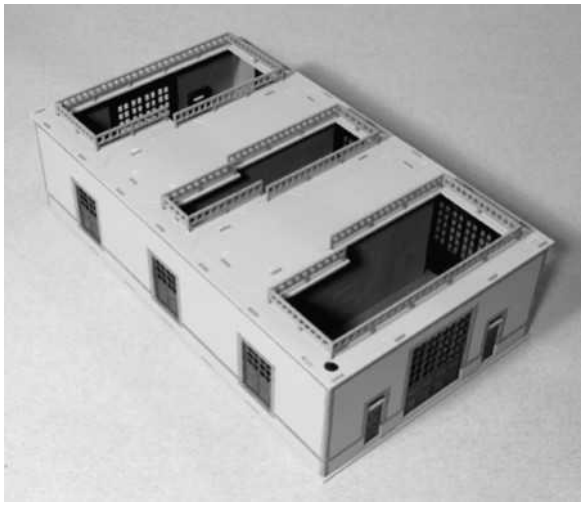


Figure 9

Attach railings to stairs and trim to length. Make sure one assembly has the railing to the left of the stairs, and one is to the right of the stairs. Paint stairs and ladders gray. Install the ladders in the center opening and the stairs in the two outer openings using white glue.

Prime and paint the turbines. Once dry, glue onto part (B) with white glue. Use the engraved lines as your guide, as it will be a snug fit when attaching Unit 2 to Unit 1. See Figure 10.

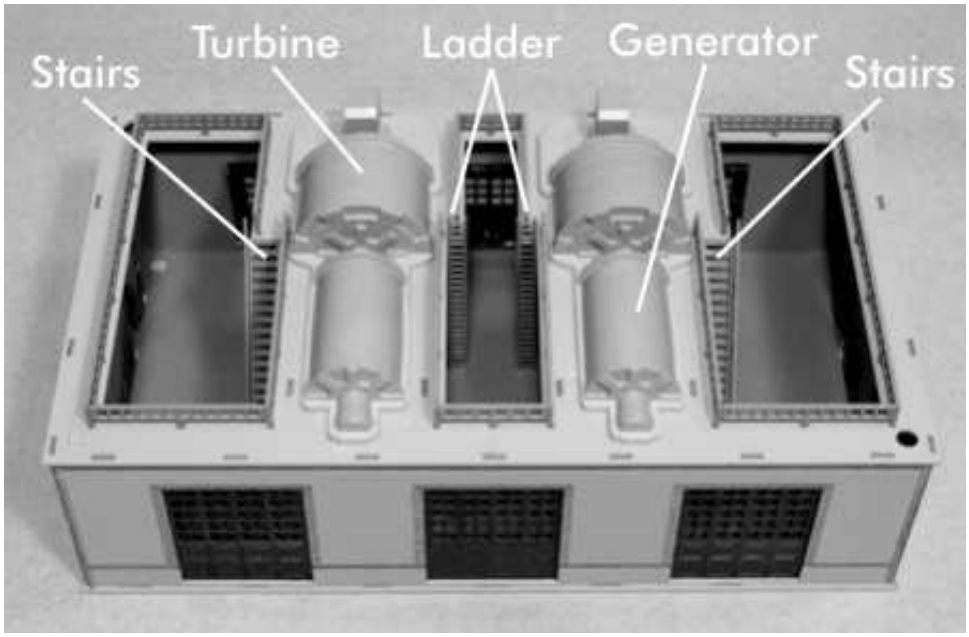


Figure 10

Unit 2

This unit is symmetrical, therefore both short walls and both long walls are identical. Take base (C) and lay it flat on your work surface with the engraved part number facing up. Working your way around the base, glue parts (2-1) into the shorts sides of base (C), and glue parts (2-2) into the long sides of base (C). Make certain that all the tabs are seated properly and all corners are glued together at right angles. You may wish to test fit, **but do not glue**, the roof (D) into the top of the Unit 2 assembly. See Figure 11.

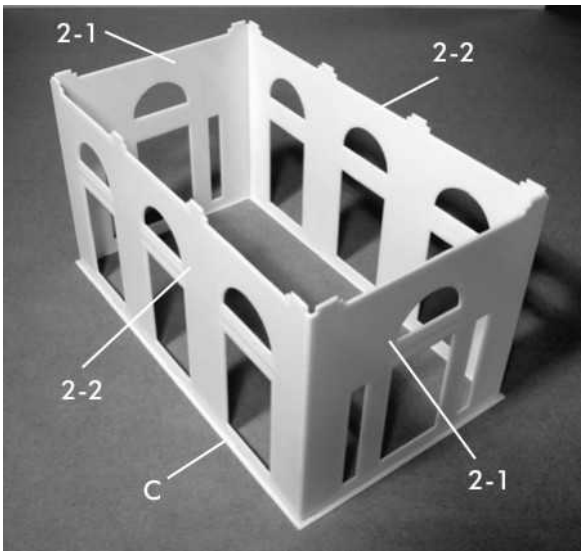


Figure 11

Now that the basic box structure is together, the walls are built up with an additional layer. These layers do not have tabs and are simply glued to the face of each wall. These parts should be centered and the window openings act as your guide. Parts (2-3) are affixed to the surface of the short sides, and parts (2-4) and affixed to the surface of the long sides. Make certain to glue around the window openings so there is no gapping between layers. See Figure 12.

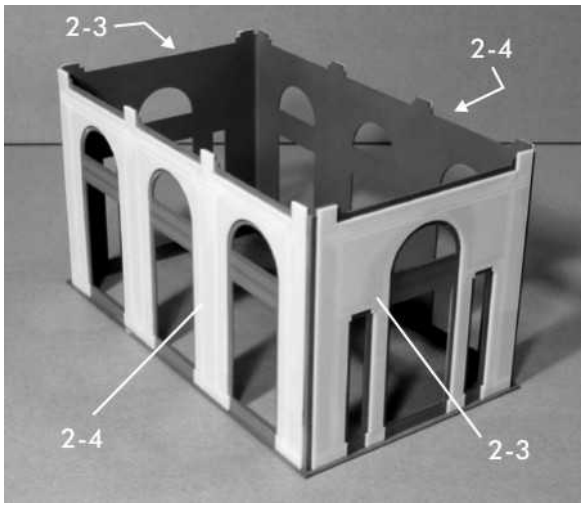


Figure 12

Fill and sand the corners of the assembly if necessary. You may also wish to sand the top edge of the unit where several pieces are layered together. Prime the unit gray inside and out. Spray paint the inside walls white. Once dry, tape off the wall openings from inside in a similar fashion as Unit 1. Now spray the outside walls khaki. Finish the unit by painting the brick and applying a wash.

See Figure 13.

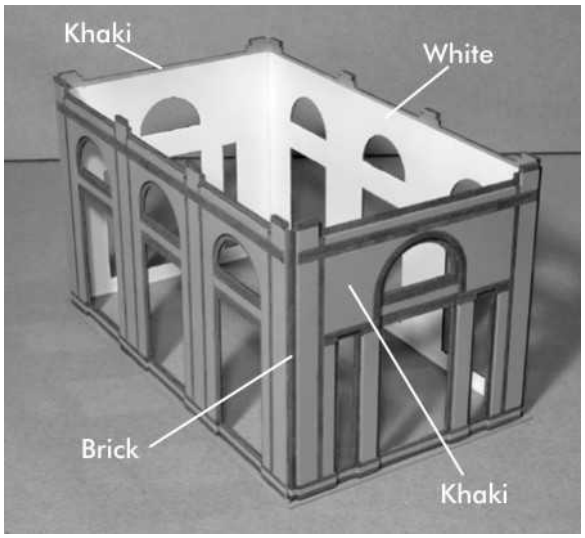


Figure 13

Paint the windows, parts (2-5) through (2-7), and then apply a light wash. Once dry, glue window glass behind each corresponding piece. Then, glue window assemblies behind the appropriate openings of Unit 2. Note that parts (2-5) and (2-6) are not symmetrical top and bottom.
See Figure 14.

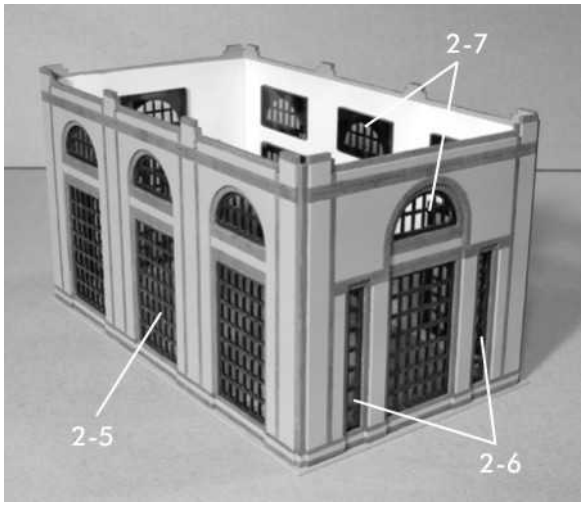


Figure 14

Paint the roof (D) and set aside to dry. It will be installed later.

Overhead Traveling Crane and Hoist

Take one support (C-1) and put it flat on your work surface. Glue four rail support brackets (C-3) into the slots of (C-1) with the indentation facing up. Insert the rail (C-2) into the indentation of the rail support brackets and glue into place. See parts diagram for orientation. Make certain that the rail does not extend beyond the support as this assembly is a tight fit inside Unit 2. Repeat to make a second assembly. See Figure 15.

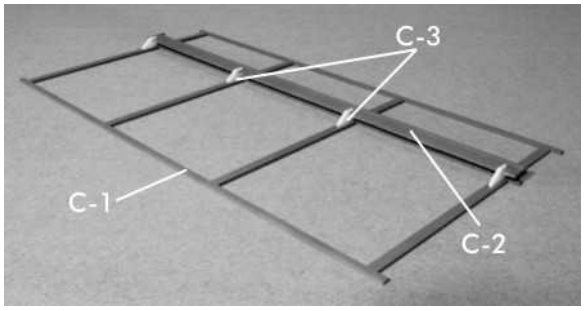


Figure 15

Paint the support assemblies black. Once dry, install one assembly on the inside of each long wall of Unit 2. See Figure 16.


Figure 16

Construct the traveling crane by attaching part (C-5) to (C-4) to make a beam assembly. Keep the bottoms flush and the parts centered so that the tabs on either end of (C-4) extend beyond (C-5). See parts diagram for orientation. Repeat to make a second assembly. Complete the traveling section of the crane by making a box with a beam assembly on either side, and part (C-6) at either end. The tabs of (C-4) insert into the slots of part (C-6). See Figure 17.

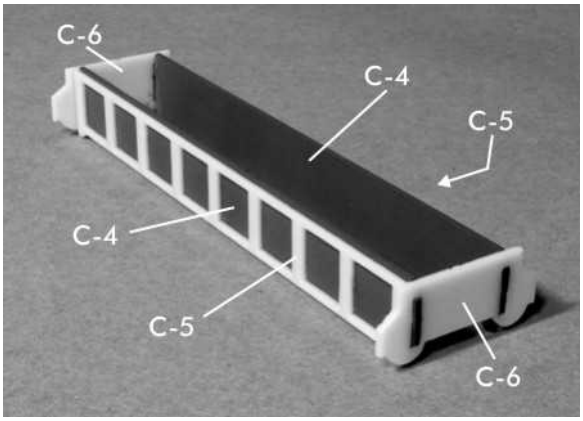


Figure 17

Assemble the hoist by taking the wheels (H-2) and attaching one to the tab on either end of (H-1). Make sure that both (H-2) parts are facing the same direction with the circles on the bottom. Next, glue one (H-3) into each slot on the top of (H-1). Make certain that both parts are facing the same direction with the engraved side facing out. Glue one part (H-4) centered in the engraved circle of each part (H-3). See Figure 18.

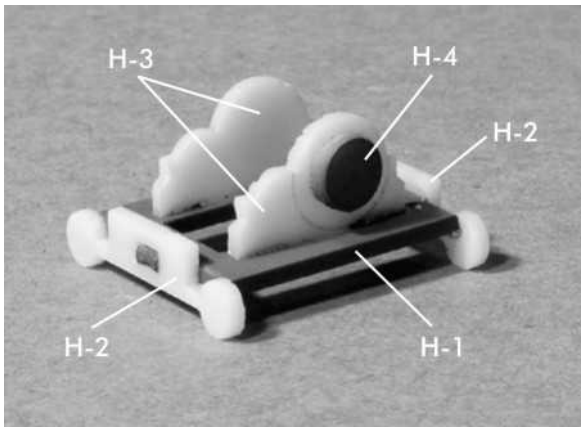


Figure 18

Complete the hoist by taking one part (H-6) and gluing it to either side of part (H-5) at the top. Continue to stack part (H-6) on either side of part (H-5) until the assembly fills the space between parts (H-3). Because of variation in the thickness of acrylic, you may not need to use all of the parts (H-6) provided, and you may need to sand the assembly to fit it between parts (H-3). When gluing the two assemblies together, make certain that part (H-5) hangs down straight from the traveling crane.
See Figure 19.

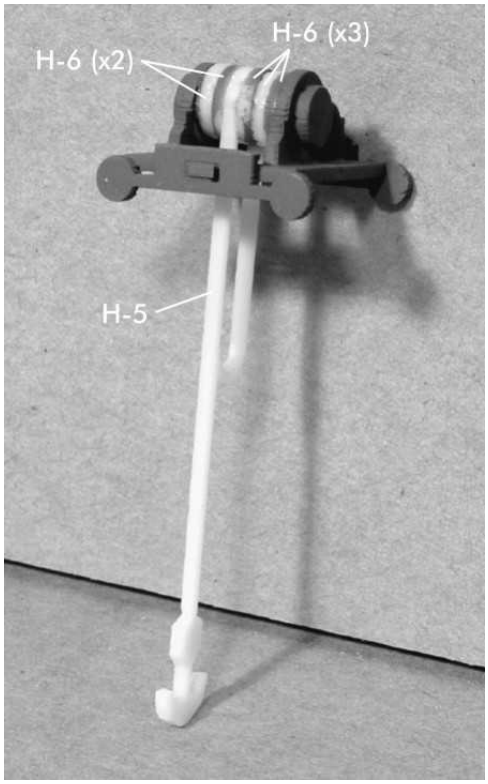


Figure 19

Paint the traveling crane black. Once dry, attach inside Unit 2 between the supports. You may position the hoist anywhere along the supports. When not in use, the crane would be against one of the end walls. See Figure 20.

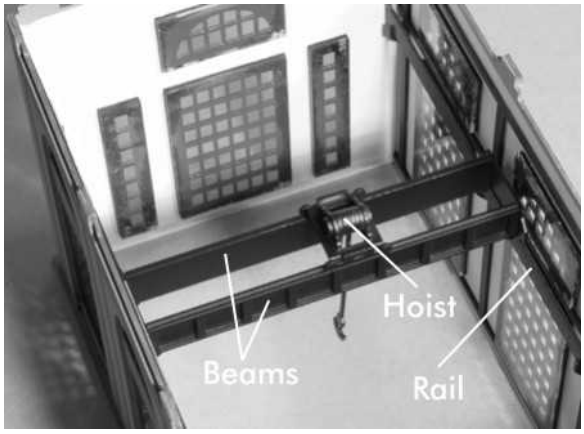


Figure 20

Skylights

Take base part (S-1) and put it flat on your work surface. Working your way around the base, glue parts (S-2) into the shorts sides of (S-1), and glue parts (S-3) into the long sides of (S-1). Glue a second part (S-1) on top of the assembly. Make certain that all the tabs are seated properly and all corners are glued together at right angles. Repeat to make 2 more. See Figure 21.

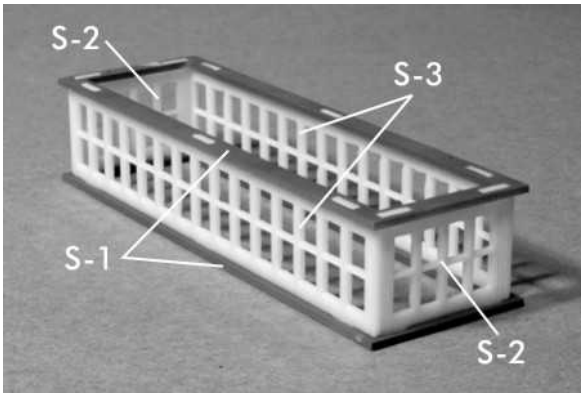


Figure 21

Paint the assemblies and apply a wash. Once dry, carefully cut pieces of acetate to fit behind each window. Attach using super glue (CA). Prime and paint resin rooftops. Once dry, attach one roof to the top of each assembly using super glue (CA). See Figure 22.

Figure 22

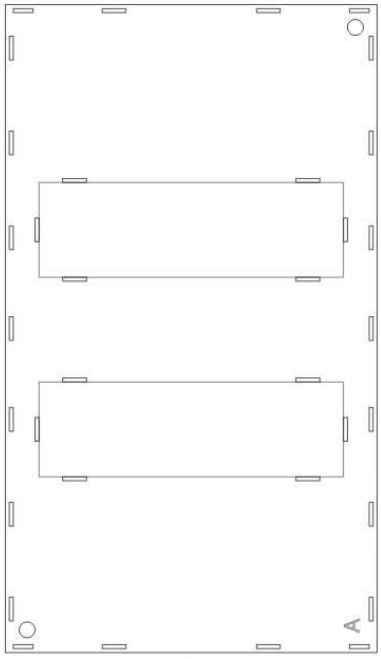
Final Assembly

To complete the assembly of your building, attach Unit 1 and Unit 2 together using white glue.

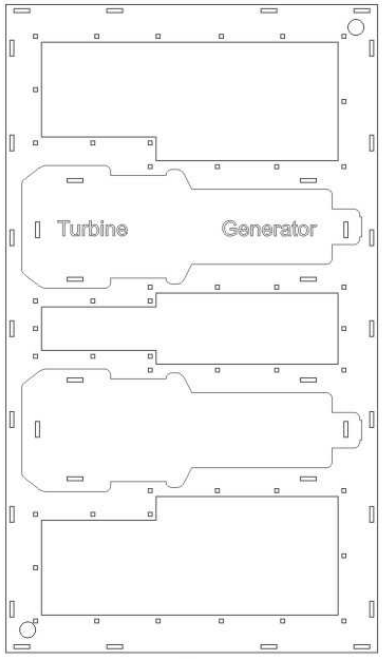
Next, attach the roof to Unit 2. It will fit inside the unit and rest on top of the supports for the traveling crane. Once in place, you may need to touch up the paint on the inside walls so that above the roof they are khaki to match the rest of the building.

Last, attach the skylights to the roof using white glue. Center them above the three openings.

Your building is finished and ready to install on your layout. You may add lights and other details. We thank you for purchasing this kit from CMR and hope that you have enjoyed building it. Be sure to see our other kits at www.cmrtrain.com.



A



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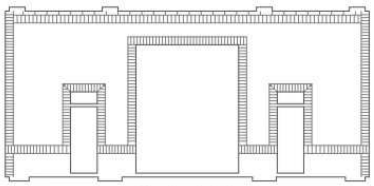
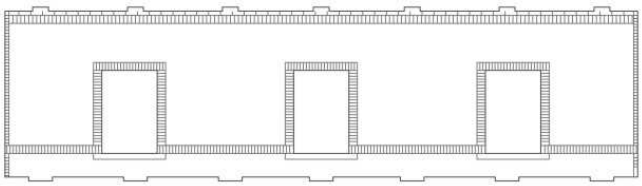
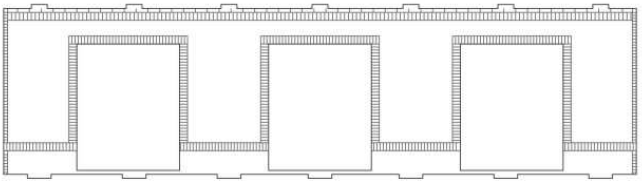


1-1 (x2)

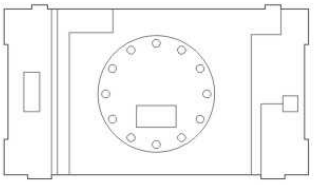


1-2 (Turbine Side)

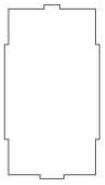


1-3 (Generator side)

Unit 1



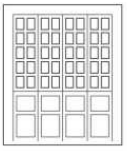
1-4 (x4)



1-5 (x4)

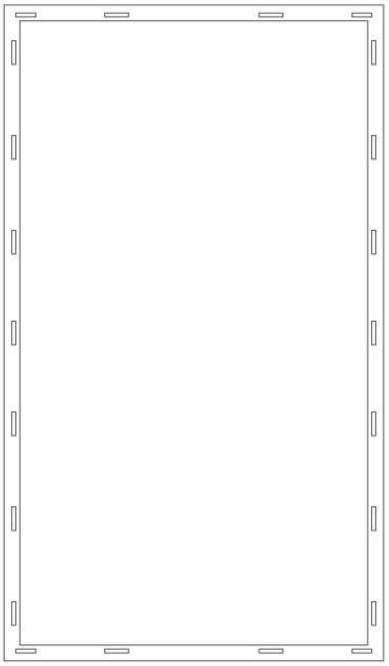
1-6 (x4)

1-7 (x3)

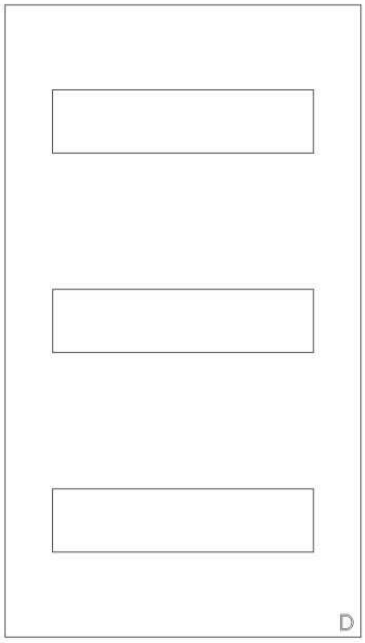


1-8 (x5)

Unit 2



C



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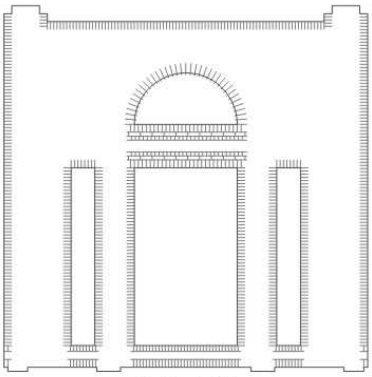

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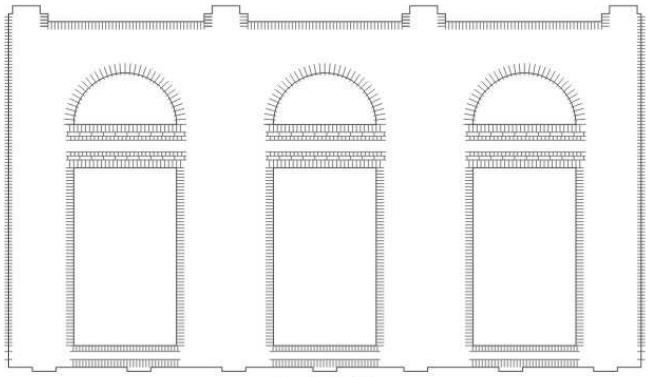

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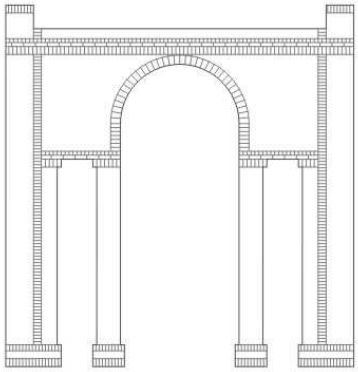

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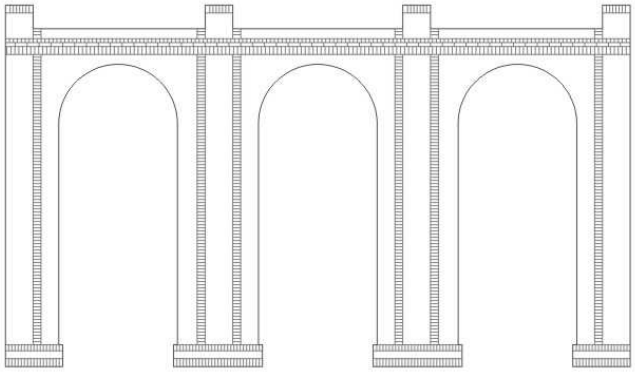

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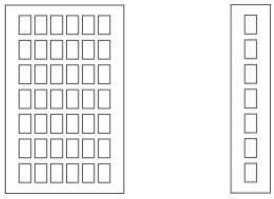
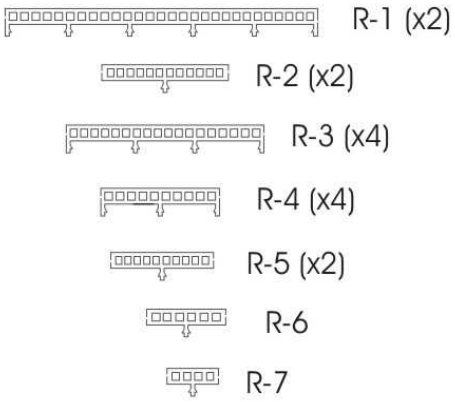
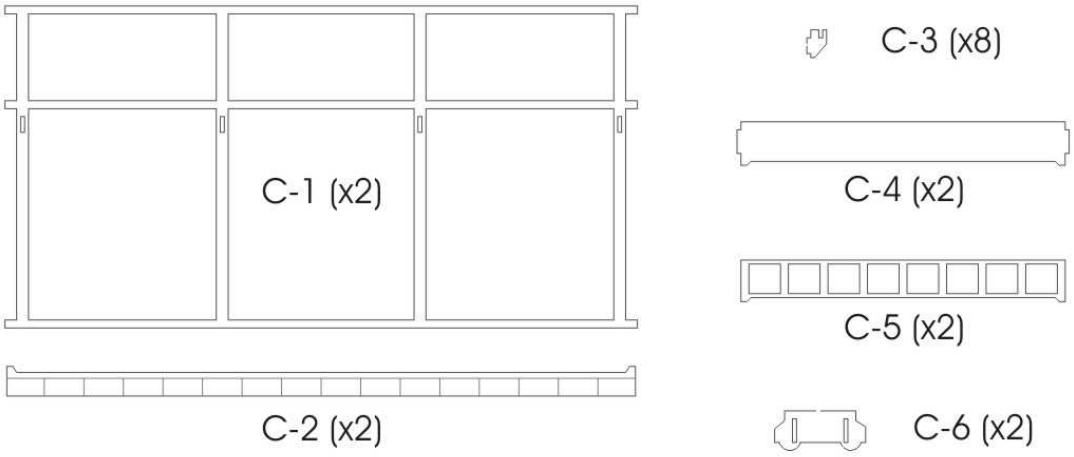


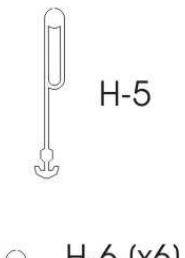
Unit 2 Windows



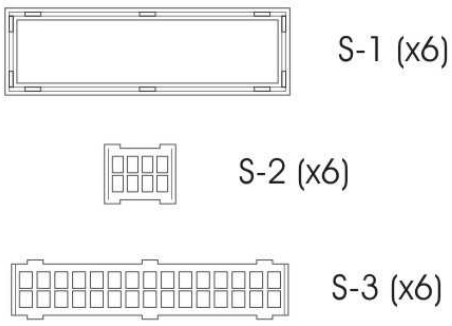
Unit 2 Railings



Overhead Traveling Crane



Hoist



Skylights