



Building Under Construction

Instructions for Assembly of the HO scale kit

vl.1

Kit Contents:

136 ea. Laser cut .120" acrylic parts.
86 ea. Laser cut .060" acrylic parts
59 ea. Laser cut .060" acrylic elevator parts
9 ea. 3D printed stairways
1 ea. 1/16" x 1" styrene round rod
4 ea. 1/16" x 10" styrene square rod
1 ea. .010" x 10" piano wire
Instructions with diagrams

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 day.

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

Practice gluing the acrylic together if you have never done it before.

It is a good idea to dry fit (test fit without glue) all the parts prior to assembly. Some of the parts fit behind others so the order of assembly is critical.

If by chance a part is missing or broken, please write (email: info@cmrtrain.com) us indicating the scale, kit name and part number and we will send you a replacement.

Please note that parts of the kit have been painted gray in the assembly photos so that new parts can easily be seen and identified. This is only for ease of identifying parts and seeing them clearly in the photos. We recommend gluing all parts together prior to painting unless otherwise noted. If the parts are glued together after painting the painted area should be scraped or sanded to remove the paint and expose the plastic.

Pre-production models were used in these instructions, your parts may vary slightly.

You will need the following items to assemble your model: Hobby knife, fine sand paper, file, paint (see "Painting Your Model"), paint brushes, glue (see "Gluing Acrylic"), modeling putty.

About the Kit

Our kit is based on a 1970's to current day high rise building that is under construction.

Parts are labeled in the instructions inside parentheses. Parts with an engraved letter on them should always be facing up during construction unless noted.

Some parts have engraved details on them. Be sure that these are facing out or up (unless otherwise noted) when gluing the parts together. It is easy to install these backwards by mistake.

Adhesives

Gluing Acrylic

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

We recommend using Scalecoat brand "Probond", Plastruct brand "Bondene Solvent Cement" or "Plastic Weld Cement". Most hobby shops carry these products. Or they may be ordered directly from the manufacturer.

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 bottles may be purchased from CMR.

Cyanoacrylate (CA) Super Glue

Parts that are not plastic or are painted prior to gluing must be glued together using a non solvent based glue. This means the parts are held together by the glue and not the process of fusing or welding them together with solvent. For this we recommend using CA where noted in the instructions.

Craft Glue

Some parts are easier to glue using craft glue such as “Sobo”. We use craft glue to stick previously painted parts together when we want a little working time.

Preparing Your Model for Painting

We recommend lightly sanding all parts to remove the raised edge created during the laser cutting process. In order to hide the seams we recommend using “hobbyist putty” such as Squadron modeling putty. Do this in a very well-ventilated area. Apply the putty over the seams and allow to dry overnight. Once the putty has dried, place a sheet of fine sandpaper on a flat surface and sand smooth. You may need to apply a second coat of putty and sand again.

Painting Your Model

This kit is a little different than our other kits. You will most likely want to paint the model as you go along. Otherwise it will be difficult to paint the interior spaces of the building.

We painted each floor prior to assembly by priming it with Krylon Gray spray paint. We then painted it a concrete color using Krylon Camouflage Khaki spray paint. As we worked our way up the building we scraped the paint off the parts as best we could before gluing new parts to them. Then we painted the assembly before moving on to the next floor. When all the concrete assembly was completed we touched up seams and repainted. Finally we airbrushed the entire assembly with a similar color to give it a nice flat concrete look.

See Figure 1.

We painted the cinder block pieces with Krylon Gray spray paint and applied a flat black wash to them to bring out the mortar lines.

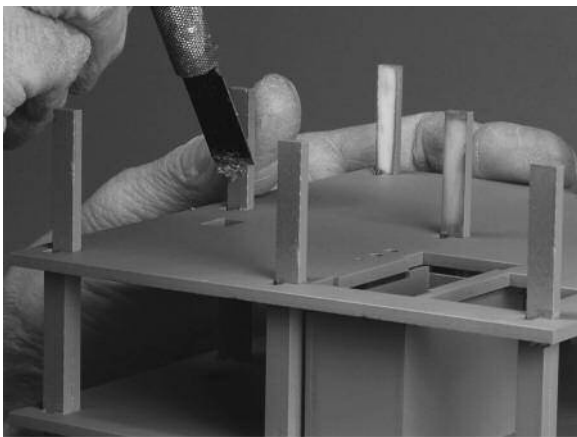


Figure 1

We primed and then painted the metal window frames with Krylon Silver spray paint. There is no need to weather as they are brand new.

We primed and then painted the construction elevator with Krylon Silver spray paint. The detail parts were hand painted using acrylic hobby paints.

Assembly of the Building

The floors will be stacked on the columns. The long columns will travel up through all the floors and the short columns will separate the floors to the correct distance. The first floor is taller than the upper floors. Be sure to be using the correct parts as they look very similar. Part numbers for these parts are engraved next to the parts.

Glue part (2) onto the bottom of the long column part (1). The ends on part (2) are identical; there is not a top or bottom. Be sure that the orientation of the tab on the bottom of part (2) is the same as shown. The tab should be on the left and the notch on the right. Make up twelve of these assemblies. See Figures 2 & 3.

Assemble the first floor elevator shaft. Glue parts (E-1), two parts (E-2) and (E-3) together to form a box. The two parts (E-2) fit between parts (E-1) and (E-3). Dry fit the elevator shaft into the slots on part (A) while the glue is still soft so that it will dry square. When the glue has completely hardened remove the elevator shaft and block sand to get sharp corners. See Figure 4.

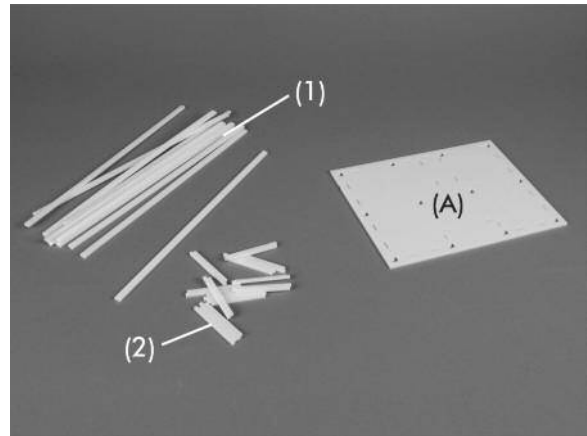


Figure 2

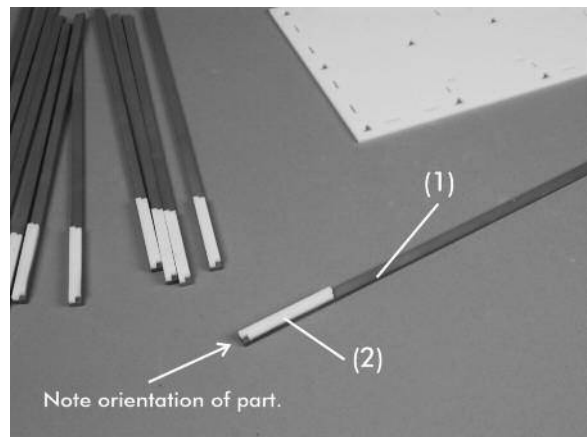


Figure 3

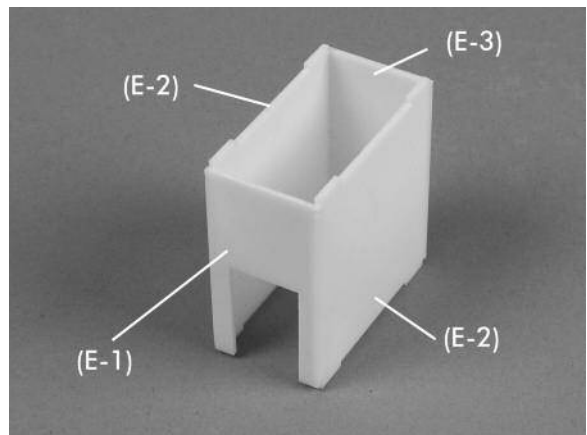


Figure 4

Glue the elevator shaft to part (A) using the slots for alignment. Glue the twelve columns to part (A) using the figures for proper orientation. The entire assembly will be quite floppy at this point. See Figure 5.

You can slide part (B) onto the top of the columns temporarily to help stabilize them while the glue sets.

Prime and paint the lower part of the assembly as well as both sides of part (B). See Figure 6.

Slide part (B) down the columns and fit in place. Be sure that all the tabs and slots are fitted properly. Glue in place.

Prime and paint the first floor stairs and install using CA. See Figure 7.

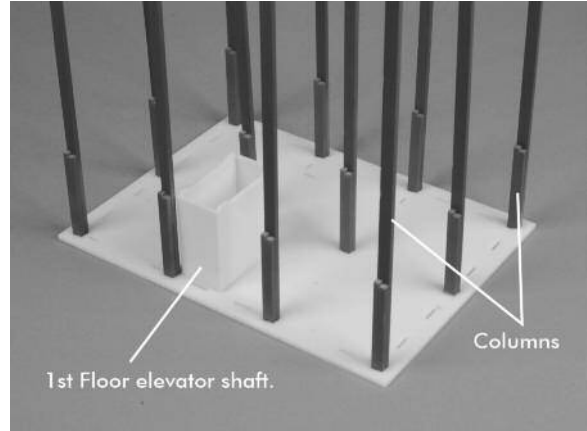


Figure 5

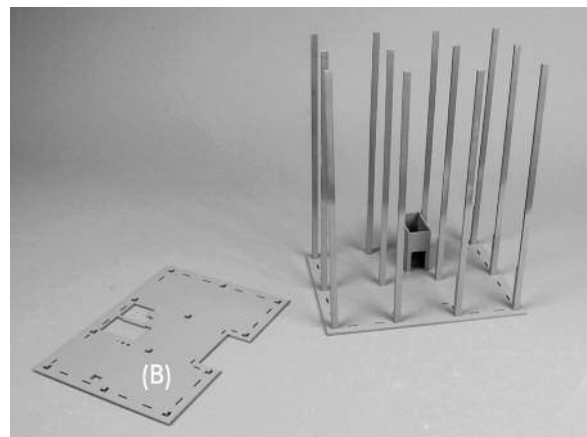


Figure 6

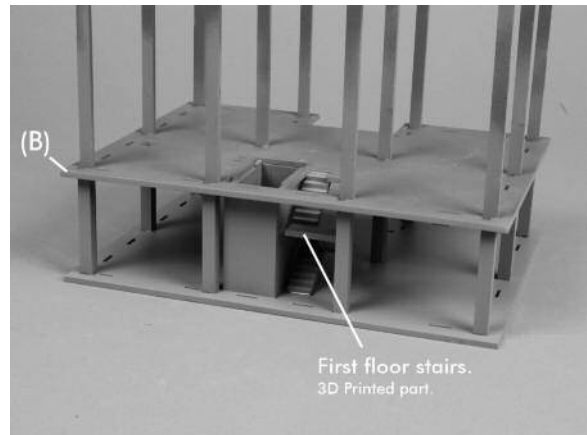


Figure 7

Assemble the upper floor elevator shafts. You will build a total of eight. Glue parts (E-4), two parts (E-5) and (E-6) together to form a box. The two parts (E-5) fit between parts (E-4) and (E-6). Dry fit the elevator shaft into the slots on part (B) or parts (D) while the glue is still soft so that it will dry square. When the glue has completely hardened remove the elevator shaft and block sand to get sharp corners. See Figure 8.

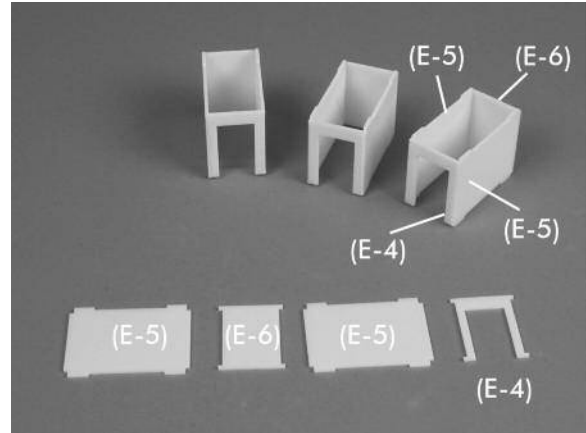


Figure 8

Glue a part (3) to each of the long columns with the tab located in the slot on part (B). See Figure 9 for proper orientation and location.

Glue an upper elevator shaft to part (B). See Figure 9.

Place part (C) flat on your work table with the engraved lines facing up. Glue part (4) to part (C) using the engraved lines for placement. See Figure 10.

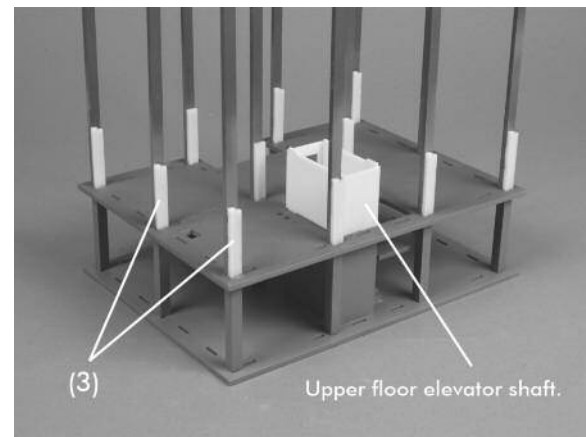


Figure 9

Prime and paint the new part of the assembly as well as both sides of part (C) and the stairs. See Figure 11.

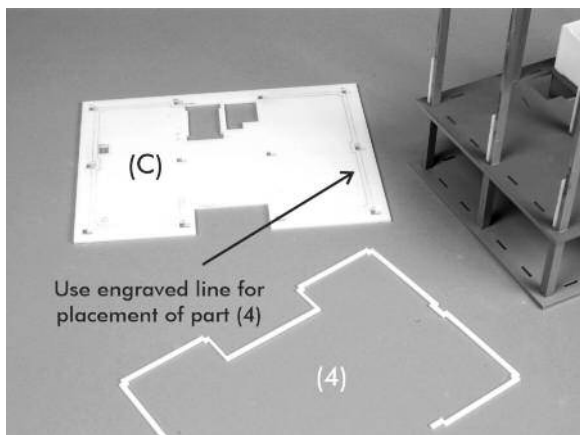


Figure 10

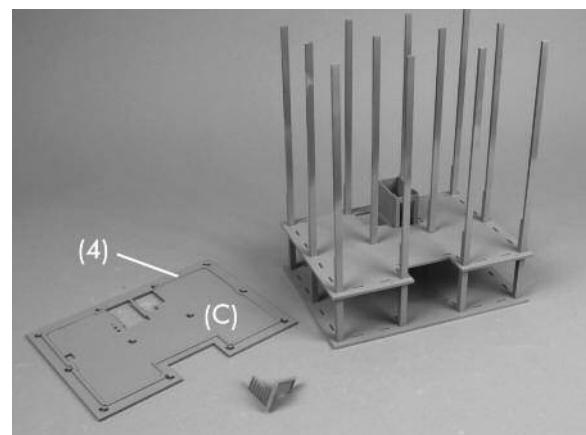


Figure 11

Note that on part (C) the engraved lines are on the bottom of the part and will face down when installed on the model. The side with part (4) glued to it faces down.

Slide part (C) down the columns and fit in place. Be sure that all the tabs and slots are fitted properly. Glue in place.

Install a flight of the upper floor stairs using CA. See Figure 12.

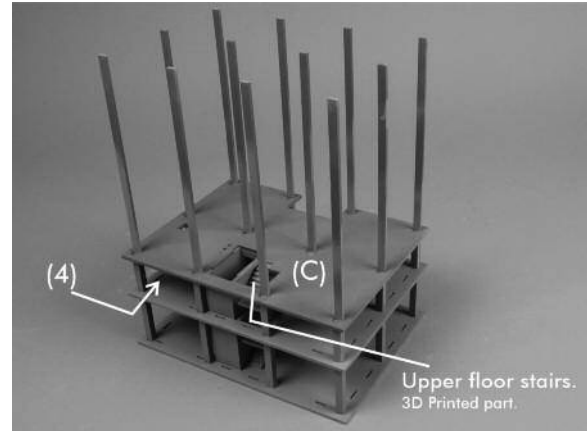


Figure 12

Glue a part (3) to each of the long columns with the tab located in the slot on part (C). See Figure 13 for proper orientation and location

Glue an upper elevator shaft to part (C). See Figure 13.

Prime and paint the new part of the assembly as well as both sides of part (D).

Slide part (D) down the columns and fit in place. Be sure that all the tabs and slots are fitted properly. Glue in place.

Prime and paint the upper floor stairs and install using CA.

Repeat this process three more times. See Figure 14.

Check that every floor is evenly spaced and that the assembly is square. You may want to lay it on its side to be sure.

Install parts (3) to nine of the columns. They will stick up beyond the top of the column. Install parts (5) to the three remaining columns. They will stick up beyond the top of the long column slightly and need to be trimmed or filed flush. See Figure 14.

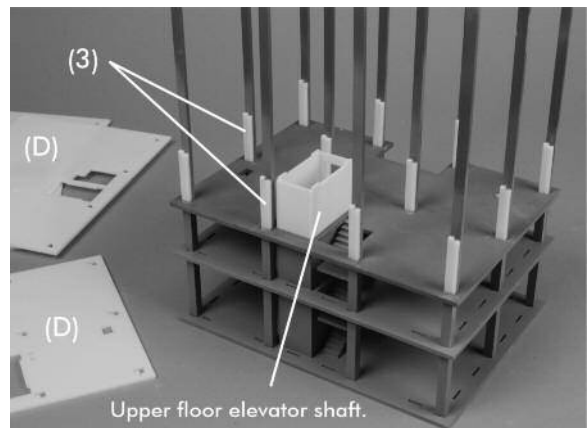


Figure 13

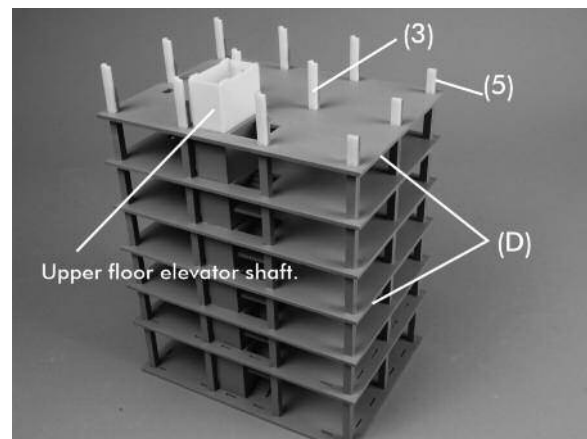


Figure 14

In order to build the upper part of the building we will first need to extend the long columns. In order to keep them square it is advisable to use a couple of the floors, part (E), to temporarily hold them in place while the glue sets. Laying the assembly on its side will help as well.

Glue parts (6) to the top of the long columns using the already installed part (3) to splice them together. See Figure 15.

Prime and paint a floor part (E).

Slide a floor part (E) down the columns and fit in place. Be sure that all the tabs and slots are fitted properly. Glue in place. See Figure 16.

Glue a part (3) to each of the long columns with the tab located in the slot on part (E).

Glue an upper elevator shaft to part (E).

Prime and paint the new part of the assembly as well as both sides of part (E).

Slide a floor part (E) down the columns and fit in place. Be sure that all the tabs and slots are fitted properly. Glue in place.

Prime and paint the upper floor stairs and install using CA.

Repeat this process two more times. See Figure 17.

Check that every floor is evenly spaced and that the assembly is square. You may want to lay it on its side to be sure.

Install parts (7) to the tops of columns. They will stick up beyond the top of the long column slightly and need to be trimmed or filed flush. See Figure 17.

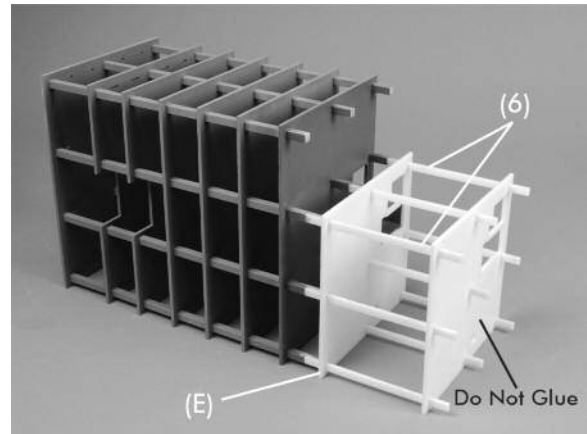


Figure 15

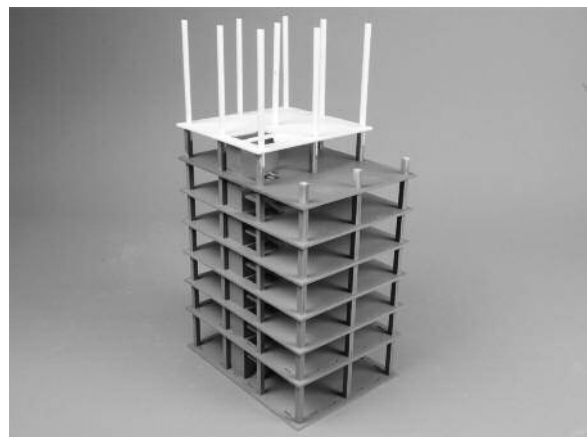


Figure 16

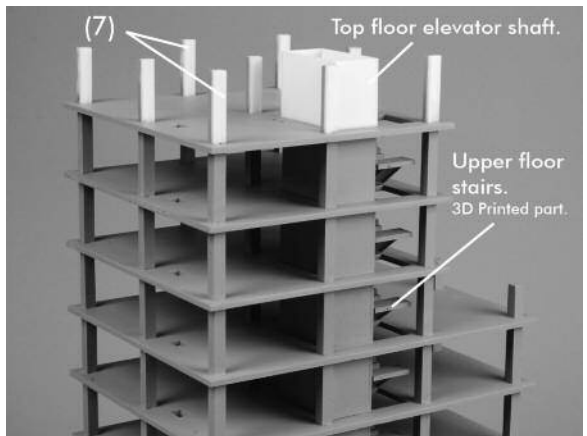


Figure 17

Assemble the top floor elevator shaft. Glue parts (E-7), two parts (E-8) and (E-9) together to form a box. Dry fit the elevator shaft into the slots on part (E) while the glue is still soft so that it will dry square. When the glue has completely hardened remove the elevator shaft and block sand to get sharp corners. Glue in place on the top of the building.

See Figure 18.

Make sure all the columns are square and flat on the top. Glue the column caps (8) onto the top of all the columns.

See Figure 18.

The floors are all assembled at this point. You may want to clean up the edges of the columns with some putty. Allow it to dry and file or sand the edges of the columns smooth.

You will most likely want to touch up the paint before moving forward. We airbrushed our model with an acrylic concrete color that was similar to the spray paint used. This give us a better finish. If you plan to do any weathering this is the time to do it as well.

We also top coated the model with a matte spray. This helps keep the model clean and protect the paint from scratches.

See Figure 19.

Now it is time to add the walls and windows on the first two floors.

The first floor walls have a long tab that goes on the bottom and a short tab on the top. To install the walls insert the long bottom tabs and then snap the wall in place until the short upper tabs seat themselves. It will be almost impossible to remove them so make sure they look the way you want them to.

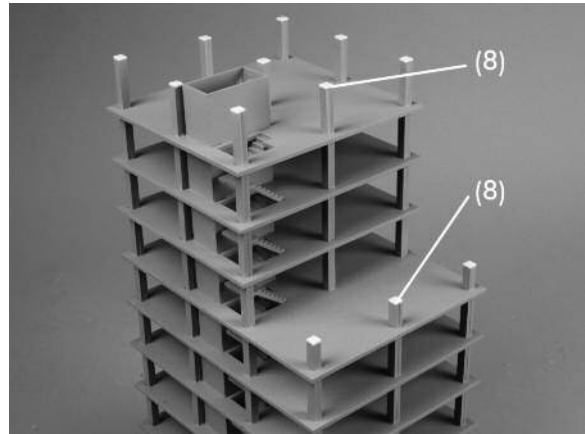


Figure 18



Figure 19

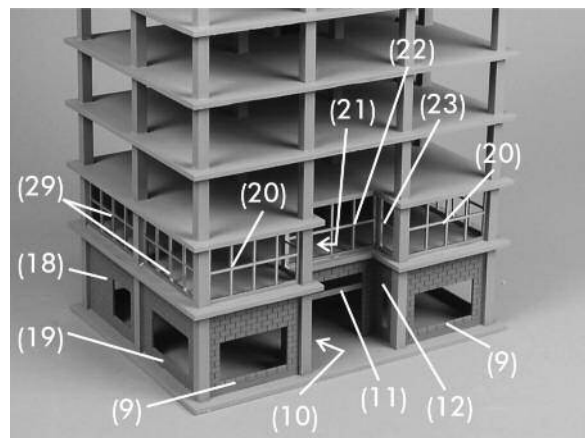


Figure 20

The second floor walls and windows have tabs on the bottom only. The top of the wall will rest against part (4) on the bottom of part (C).

Prime and paint the cinder block walls and the window frames as described earlier. Install the walls and windows as shown in the attached figures. Once installed glue in place with some CA.

See Figures 20 & 21.

The building is now complete.

See Figures 22 & 23.

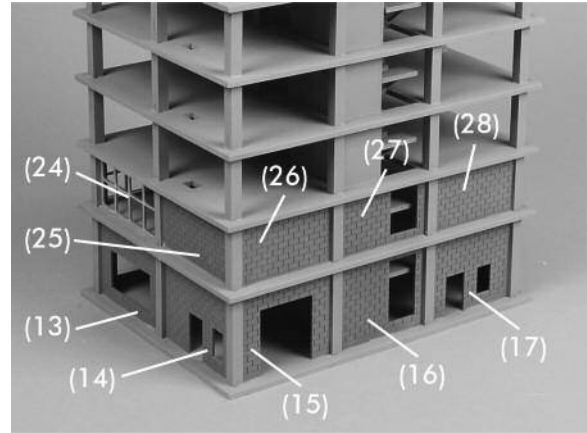


Figure 21



Figure 22



Figure 23

You can add lots of details to your model to super detail it. There are holes in the floors that you can use to add pipes and conduit with styrene rod. You can add duct work to go under the floors with square or rectangular styrene shapes. You can add floor jacks to the upper floors and safety netting around the edges of the floors. The more details the better, so have fun.

Assembly of the Construction Elevator

The construction elevator is made with six sections. There is a bottom unit, four middle units and a top unit. There is an extra middle unit for you to practice assembling before doing the rest. See Figure 24.

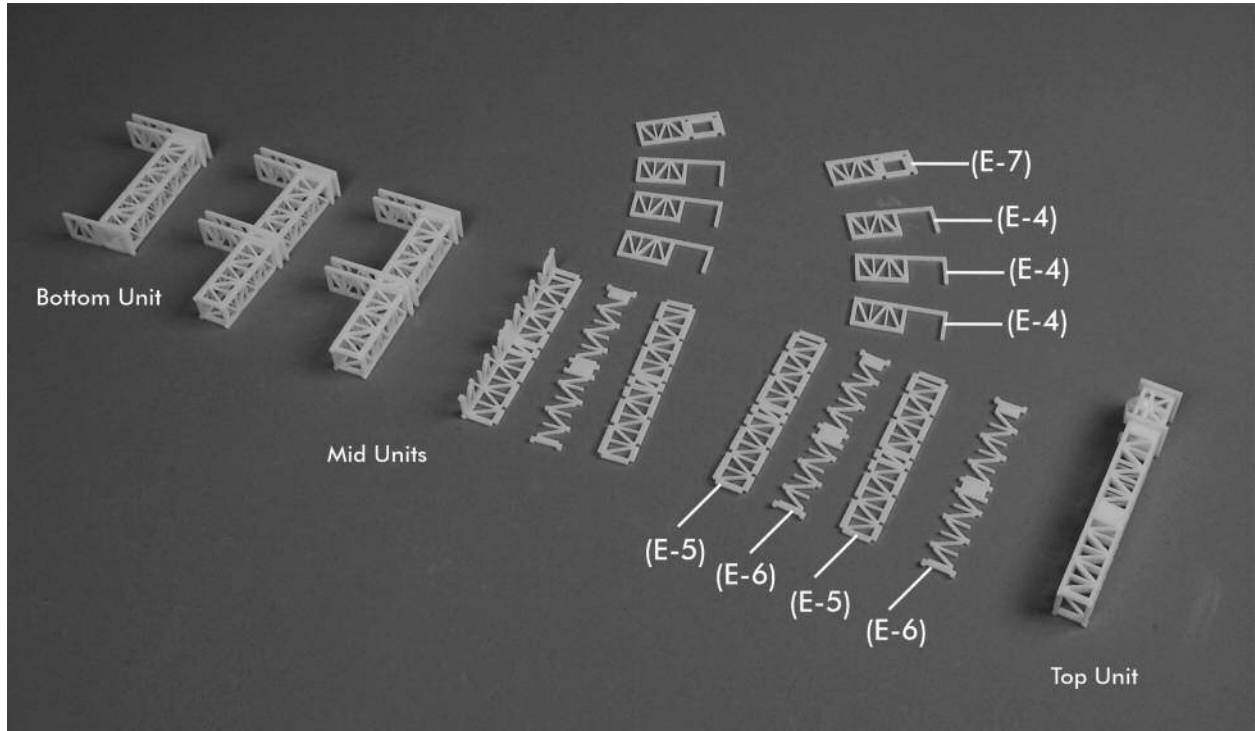


Figure 24

To build a mid section, glue two parts (E-5) and two parts (E-6) together to form a rectangular column. When hard, block sand the four sides to get a smooth finish and sharp edges. Glue part (E-7) to one end using the tabs extending from it for alignment. Note the relationship of part (E-7) to part (E-6). This is important moving forward so that the zig zag pattern in all the assemblies match.

Glue three parts (E-4) to the assembly as shown in the figures. Note that the parts will extend from three side of the rectangular column but not the fourth. All the parts should be oriented the same.

Test fit that the assembly fits onto the building floors. The (E-4) and (E-7) parts should slide above and below the floors to hold it in place. See Figure 25.

You will need four mid sections.

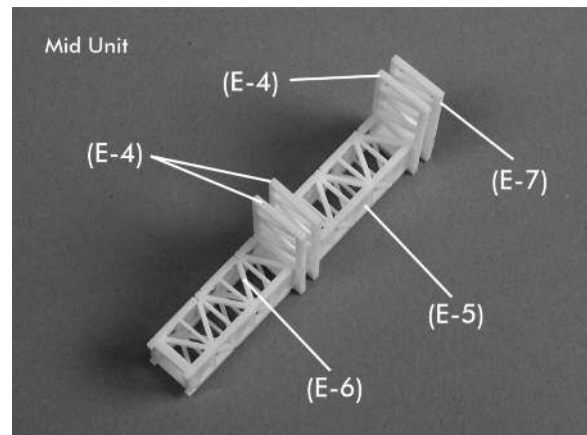


Figure 25

To build the bottom unit glue two parts (E-1) and two parts (E-2) together to form a rectangular column. Note that the parts are not quite symmetrical. The top has a longer tab and or slot area than the bottom. When hard, block sand the four sides to get a smooth finish and sharp edges.

Glue part (E-3) to the bottom end using the tabs extending from it for alignment.

Glue part (E-7) and (E-4) to the assembly as shown in the figures. Note that the parts will extend from three side of the rectangular column but not the fourth. All the parts should be oriented in the same way.

Test fit that the assembly onto the building floors. Part (E-3) will butt up to the base. Parts (E-4) and (E-7) will slide above and below the first floor to hold it in place.

See Figure 26.

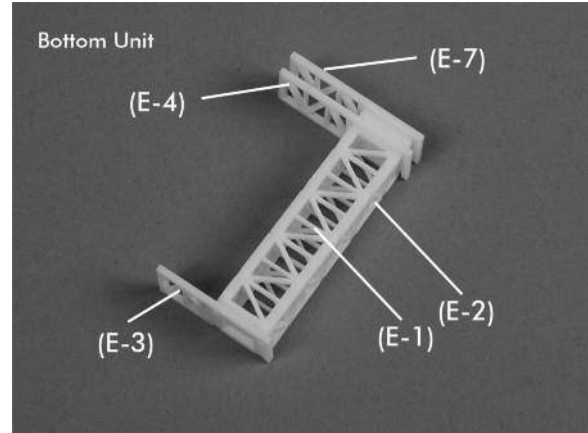


Figure 26

To build the top unit glue two parts (E-8) and two parts (E-9) together to form a rectangular column. When hard, block sand the four sides to get a smooth finish and sharp edges.

Glue part (E-10) to the top of the unit using the tabs extending from it for alignment. Glue two parts (E-11) to the top and cap with another part (E-10). Note the orientation of the parts. The two parts (E-10) should be facing in the same direction.

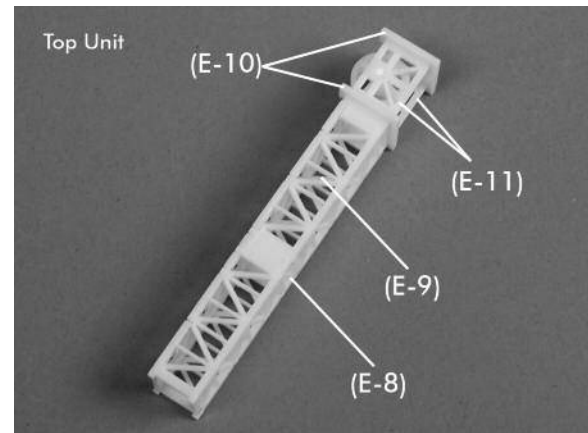


Figure 27

Assemble the hoist wheel by gluing the small wheel part (E-13) between two larger wheel parts (E-12).

Install the wheel into the assembly using a piece of the .060" rod.

See Figure 27 & 28.

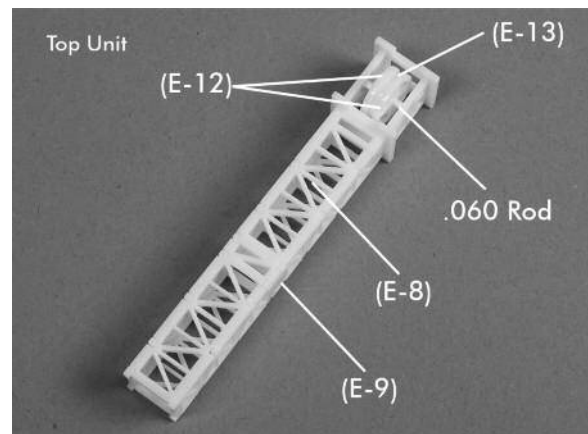


Figure 28

Build the elevator cage by assembling wall parts (E-13), (E-14), (E-15), the floor (E-16) and the roof (E-17) into a box. The roof and floor fit between the walls. Glue the elevator doors (E-19) to the front of the box.

Glue the floor support bracing (E-18) to the bottom of the floor (E-16).

Glue the glide support rails (E-20) and (E-21) to the cage using the engraved lines for location. See Figures 29 & 30.

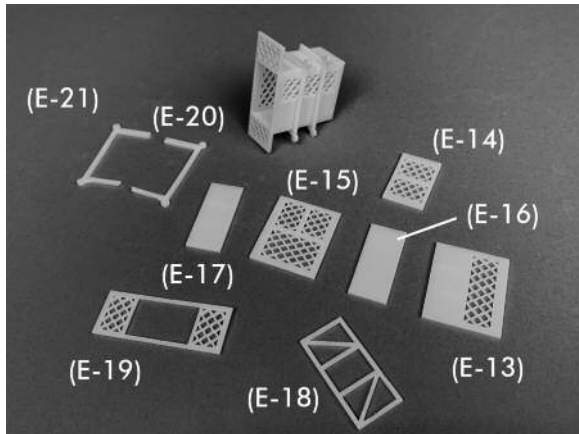


Figure 29

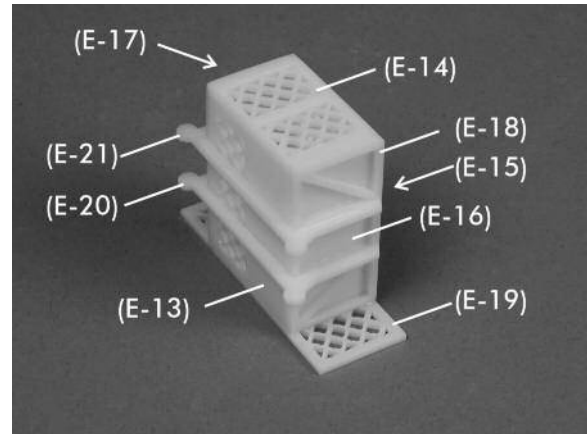


Figure 30

Assemble the units as shown in Figure 31.

Glue the included 1/16" square rod to the elevator shaft to create the rails for the elevator cage to ride on. You will need to trim the rod to length.

Prime the elevator shaft and then paint it silver. We painted the very top orange. The wheel we painted black.

Prime and paint the elevator cage. We made ours orange. You can place the elevator at any floor of your choosing.

Use the included piano wire to connect the elevator cage to the hoist wheel. See Figure 32.

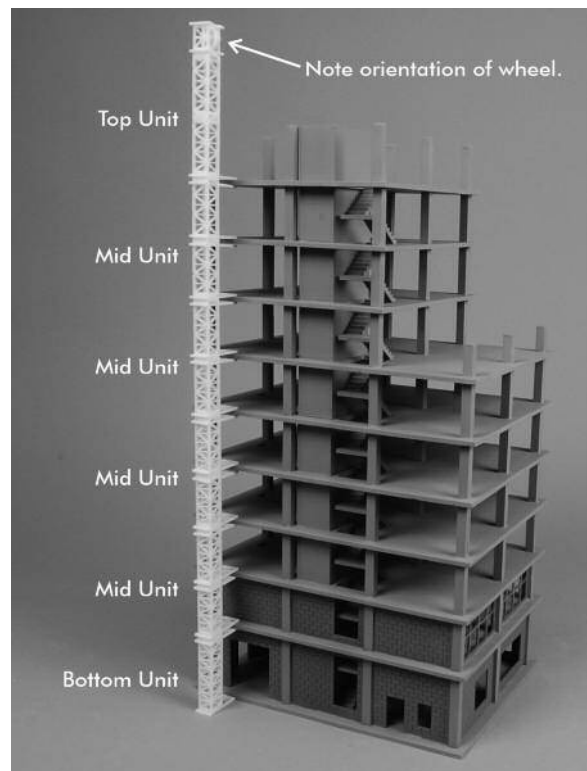


Figure 31

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 visit our website to see our other kits at cmrtrain.com.

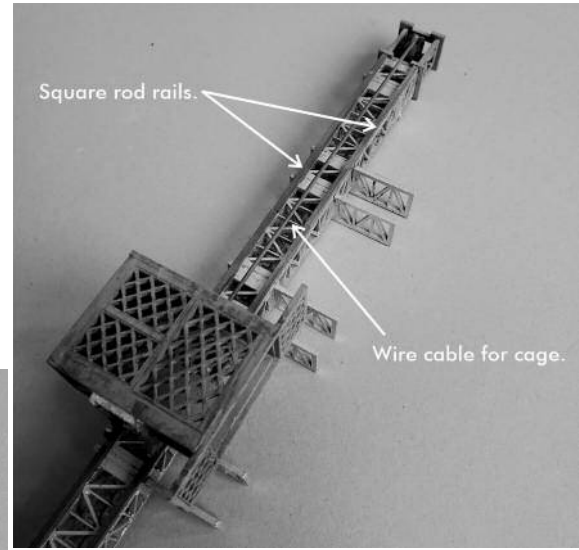
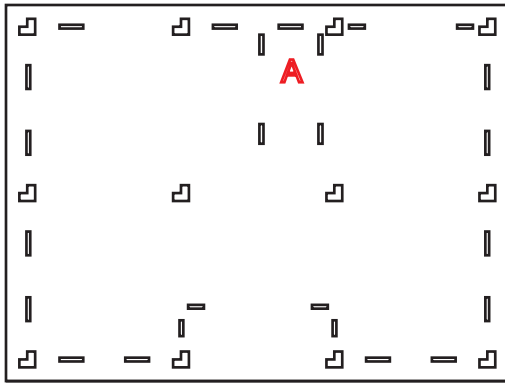


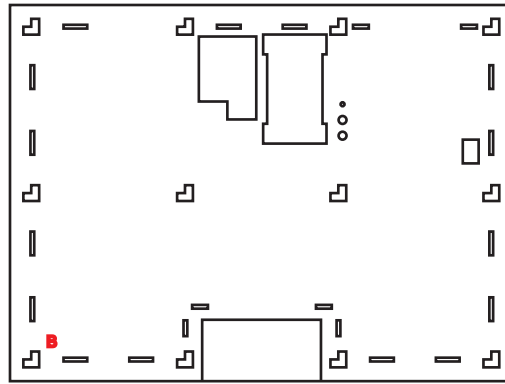
Figure 32



Figure 33



(A)



(B)



Column

First Floor Spacer



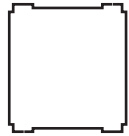
(2) x12

(1) x12

First Floor Elevator Shaft Parts



(E-1)



(E-2) x2



(E-3)

First Floor Stairs 3D Printed Part



Upper Floor Elevator Shaft Parts



(E-4)



(E-5) x2



(E-6)

8 sets total

Upper Floor Stairs 3D Printed Part

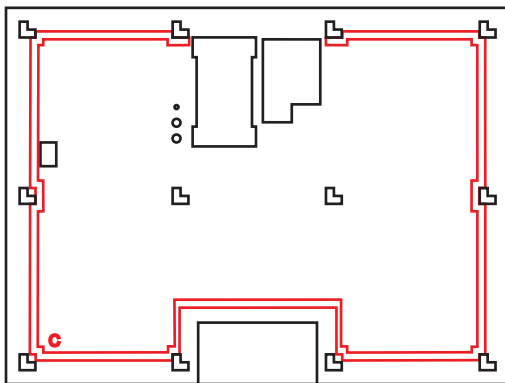


8 sets total

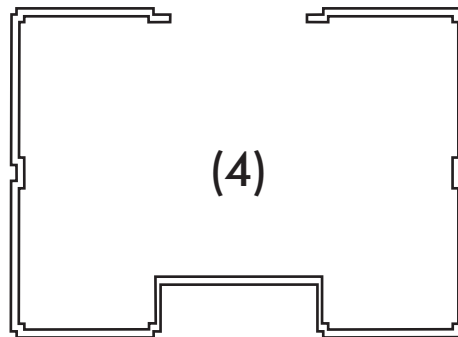
Upper Floor Spacer



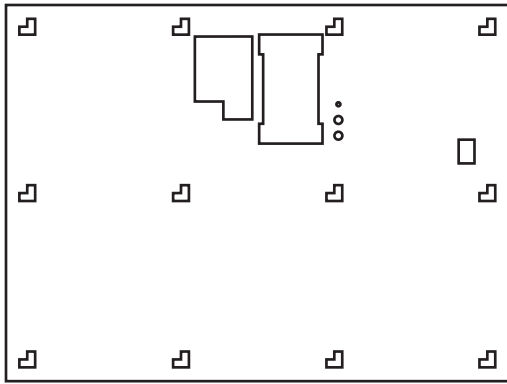
(3) x87



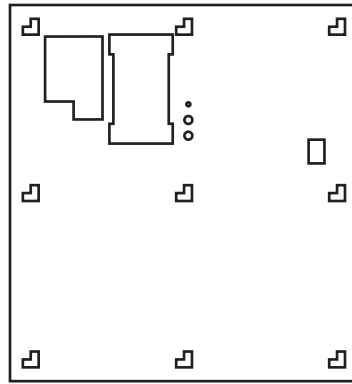
(C)



(4)



(D) x4



(E) x3



Upper Column Extension

(6) x9

Top Floor Elevator Shaft Parts



(E-7)



(E-8) x2



(E-9)



(5) x3



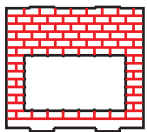
(7) x3

Column Cap

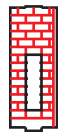
Actual Size



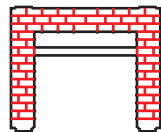
(8) x12



(9) x 2



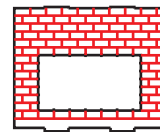
(10)



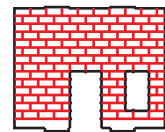
(11)



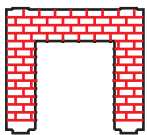
(12)



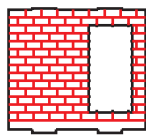
(13)



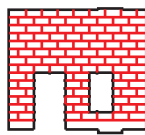
(14)



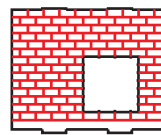
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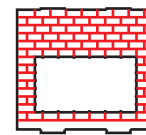
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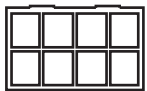
(17)



(18)



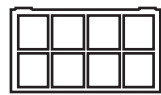
(19)



(20) x2



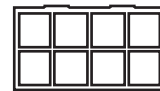
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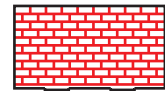
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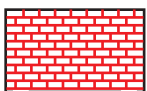
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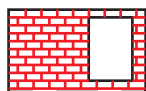
(24)



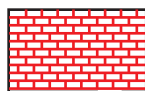
(25)



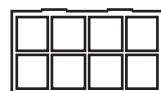
(26)



(27)

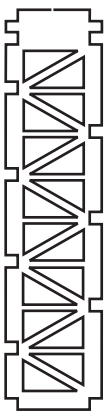


(28)



(29) x2

Construction Elevator Bottom Unit Parts x1



(E-1) x2



(E-2) x2



(E-3)



(E-4)

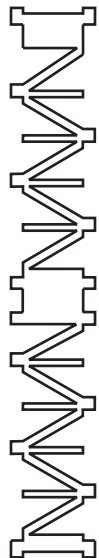


(E-7)

Construction Elevator Mid Unit Parts x4 (plus one spare).



(E-5) x2



(E-6) x2

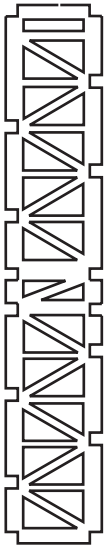


(E-7)



(E-4) x3

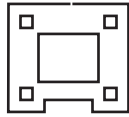
Construction Elevator Top Unit Parts x1



(E-8) x2



(E-9) x2



(E-10) x2



(E-12) x2



.060
Styrene Rod

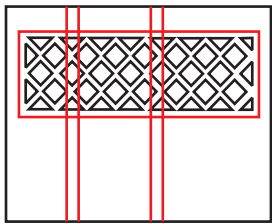


(E-11) x2

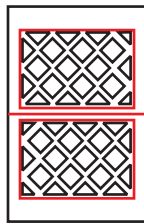


(E-13)

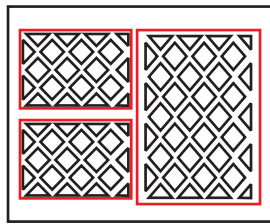
Construction Elevator Cage Parts x1



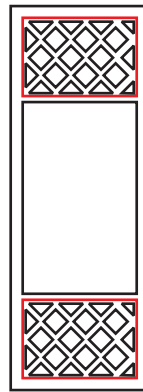
(E-13)



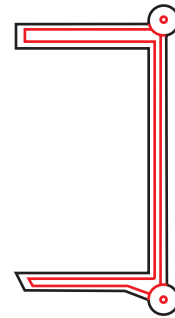
(E-14)



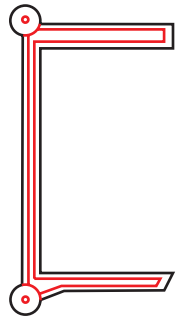
(E-15)



(E-19)



(E-20)



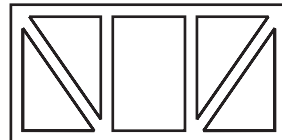
(E-21)



Roof
(E-17)



Floor
(E-16)



Floor Support
(E-18)