

## **Building a HO Scale Version of the Cream City Tool Works Complex Using Clever Models O Scaled Individual Buildings**

By Ken Myers

August 2023

The four dark brick, O scale, Clever Models Cream City Tool Works kits were purchased on May 1, 2023 and the four buildings of the complex were completed on June 9, 2023.

P/N S126, [Cream City Tool Works Building D](#), \$11.95 reg. price (08/15/2020)

P/N S121, [Cream City Tool Works Building A](#), \$12.95 reg. price (12/01/2020)

P/N S122, [Cream City Tool Works Building C](#), \$9.95 reg. price (01/05/2021)

P/N S124, [Cream City Tool Works Building B](#), \$12.95 reg. price (04/18/2021)

On May 1, 2023 they were on sale for half price.

It is important to note the dates on the individual instruction sheets.

Clever Models designs most of their card stock kits, unless specified, to be printed at 100% for O scale. On their Website they have the following information posted, "NOTE: This kit comes in O scale with instructions to print in ANY smaller scale."

To create the printed kit parts in HO scale, the printer is set to print at 55% of the PDF's original O scale kit part.

Using that method, I was able to create an HO scale dark version of the Cream City Tool Works complex, since there was never an "official" HO dark version, only the [light colored HO scale version](#).

The four O scale card stock kits, of the dark O scale sized version, were released individually from the middle of August of 2020 through the beginning of March of 2021. That is a seven month period, which allowed the designer to make some changes to each building's construction techniques over time. Therefore, each individual building's construction notes and methods evolved and changed over that time period.

The tools, techniques, and supplies noted here are what I found to be the most useful, for me, to complete this complex of buildings in HO scale, when using the PDFs designed in O scale.

About half of the 40 days of "work" on this project were spent from 6 a.m. to 3 p.m. actually doing physical work on the construction of the buildings, or proof of concept versions for the buildings, before actually working on a particular building. During that time I was also taking notes on the computer, a lot of them, and taking photos of my solutions to some of the problems that were encountered.

That type of work was also done on the other twenty days, but those days also included more research on card stock structures, exploring the [Clever Models Website](#) for more tips and hints, and using my CAD program to create some parts that actually made the construction of the buildings, in HO scale, easier when reducing the O scale sized PDF files.

### **A Tip on Using Acrobat Reader to Print Only Part of a PDF**

It is useful to be able to print only a part of a full PDF page. I used this method to print only the parts that I actually needed. It was also used to print extra doors,

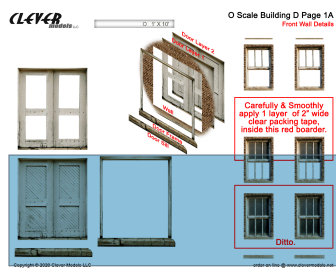
windows and parts of walls, when adding doors and windows to walls that I didn't feel had enough of either one.

The following is a link to a YouTube video on how to take a snapshot of a portion of a PDF page and then print it.

Video title: 2022 Update: How to Take a Snapshot In Adobe Reader for Printing

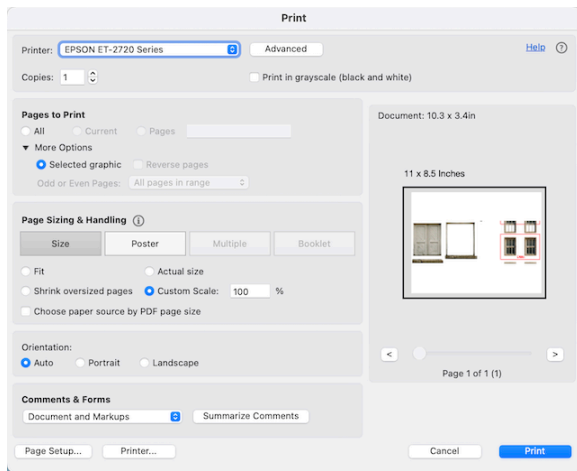
<https://youtu.be/cC96grEeF4Y>

For the HO size version, created from the O scale PDFs, I didn't make the fancy multilayer windows and doors. Only Layer 1 windows were used behind their opening in the walls. Most of the door frames and their sills or thresholds were used on the outside of the wall and the door texture was glued on the backside of the wall behind its opening. Arched doors are handled differently. Why is explained later.

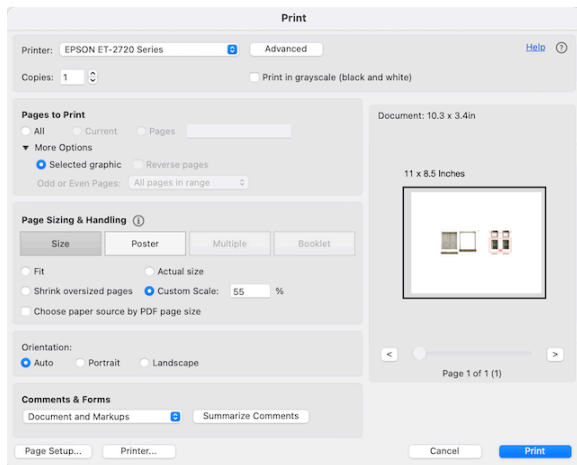


Some of the pieces on Page 1A of Building D, used as an example here, are not used.

Since only the door frame, complete door texture, the door sill and the two completed windows in the "DITTO." box needed to be printed, they can be selected in Acrobat Reader by selecting Edit>More>Take a Snapshot and then selecting them as shown in the screen capture.



Upon entering the Print Screen, the captured area when using Custom Scale: should have been selected and displays at 100%, the O Scale size, in the printed area display box. The Custom Scale box displays 100%



After changing the Custom Scale box to 55%, and clicking almost anywhere that is not an input box or button, the printed area display box then shows the selected portion as it will be printed at the reduction to 55% of the original for the HO size.

It is not necessary to see the reduced print in the printed area display box. Once the Custom Scale of 55% has been entered, the Print button may be selected and it will print at 55%. Showing that it changes was used for illustrative purposes here.



## Actually Printing the PDFs

Like many printers, my old HP 2600 series printer cannot print directly to card stock. I recommend printing on printer paper for the HO scale version, even if the printer has the ability to print on card stock. Why to do this is demonstrated later.

The PDFs, or specific parts of the PDFs, are printed to standard, white 20 pound computer printer paper. The Custom Scale: should be set to 55% for HO scale.

The printer paper was affixed to [card stock](#) using [LockTite spray adhesive](#) applied to both pieces while holding them, individually, over a drop cloth made from an old bed sheet.

The sprayed card stock was laid on a [Fiskars Self-Healing Cutting Mat](#) and the sprayed printer paper was laid on top of the card stock. It was smoothed out, wax paper was laid over them and then rolled with a [rolling pin](#) in a few different directions.

The printed PDF affixed to the card stock, was then ready for use.

## The Parapet Conundrum

All of the buildings have parapets, or low protective walls along the edge of the roof.



Because of the reduced size for HO scale, I found constructing the parapets, using the Splice Plates, as described in the Clever Models' instructions, impossible for me to do.

I developed several ways to create the parapets, but none were satisfactory until I found a note on the [Tips & Tricks page](#) on the Clever Models Website.

"11. The foundation or stiffener that I include in each kit is very critical to making a good model. Folded paper gets surprisingly stiff and strong. **However interior bracing is a must.** The stiffer the better. **I recommend that you use my interior stiffener as a template to create a foundation from foam core or some similar material.** This will help you stay plumb and add some mass to the model. The supplied stiffeners will do the job but feel free to improvise additional ones from the scrap card stock in the kit. These can be simple triangular gussets or even simpler "L" shapes glued into corners and along interior walls where needed."

I bolded the important sentences. I now use [craft foam board](#) for the Interior Supports. I thought that using only craft foam board for the roof and floor had worked equally well for both the one story and two story buildings, in HO scale, for my original builds. It had seemed to be okay when building the original four buildings, but that wasn't the case. For two story buildings, I now recommend an intermediate support between the first and second story.

## Buildings A and B

Buildings A and B are somewhat similar in their shapes. A section of both buildings is rectangular in shape and the other section is somewhat triangular in shape.

Building B was designed three and a half months after building A. The most notable change in the construction, between the two buildings, is that Building B is built in two individual sections, the two story section and the one story section, and then they are joined into a single structure. The Clever Models design for Building A has it built as a single structure.

Buildings D, C and the two story sections of Building A and B are rectangular in shape.

Building D is NOT a part of the original Cream City Tool Works complex. Building D was created, by Clever Models, as a proof of concept model for the O scale version of this complex. It does build into a nice additional structure that can be used in a lot of locations on the layout.

### **The Construction of Building A Demonstrating the Construction Techniques That I Used to Build a Second Building A in Two Sections**

I originally started the construction of the Cream City Tool Works complex with the construction of Building A. I had to stop when I ran into some problems that I did not have the knowledge to solve, at that time.

Buildings D, C and B were then constructed, in that order. The construction of those buildings acted as a learning tool, knowledge builder and conformation of what worked and what didn't work.

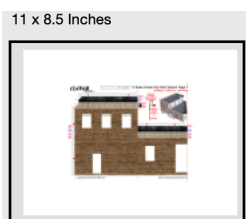
When Building A was built for a second time, I used the two section method, as used in Building B. One rectangular section was built and then the almost triangular building section was built. The two sections were then glued together using [Aleene's Original Tacky Glue](#).

Aleene's Original Tacky Glue was used almost exclusively for the adhesive. A [glue stick](#) was sometimes used to attach the paper textures to the card stock.

When building this HO scale version, none of the Clever Models Instructions were really used, except for how to emboss for the various folds. Instructions for embossing are found on the PDF titled "Kit Notes for Cream City Building A.pdf". The embossing instructions are about half way down the first page. [My video, demonstrating embossing on YouTube](#).

### **Getting Started**

The following were printed at 55% of the original. In Adobe Acrobat Reader, use Edit>More>Take a Snapshot when only part of a page needs to be printed.



Print the page titled "O Scale Cream City Building A Page 1 (Wall No. 1, Left Piece).pdf" at 55%.

The screen capture shows the page at 55% of the O scale size in the print display box on the Print page of Adobe Acrobat Reader.

11 x 8.5 Inches



Print the page “O Scale Cream City Building A Page 4 (Wall No. 4).pdf” at 55%.

Print the page “O Scale Cream City Building A Page 5 (Wall No. 5 Left Half, Details).pdf” at 55%.

Capture and print, at 55%, “O Scale Cream City Building A Page 5A (Wall No. 5 Right Half).pdf” without the Splice Plate.

8.5 x 11 Inches



Capture and print, at 55%, only the wall texture for “O Scale Cream City Building A Page 6 (Wall No. 6 Left Half).pdf”.

Print the page “O Scale Cream City Building A Page 6A (Wall No. 6 Right Half).pdf” at 55%.



A [12” metal ruler](#) and a [single edge razor blade](#) was used to trim the paper prints to make them more manageable at this point. A decent size border was left around each one. The fold and cut lines must still be showing on the sheets. The printed sheets are NOT affixed to card stock yet! They have only been trimmed.

## Correcting Some Problems

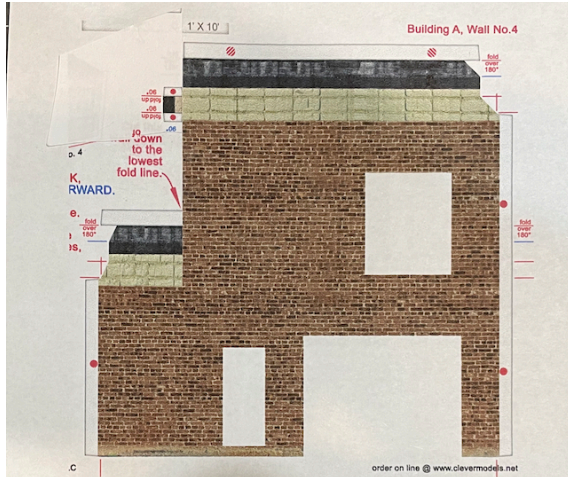
### Problem 1

The 2nd story of wall 1 has a tab to close the end of the parapet on the right side.

Wall 4, the outline mirror image of wall 1, does NOT have a closing tab for the parapet end.

The original design shows wall 5 with bricks that stick up at each end of wall 5 to close the parapets. Later, when building wall 5, the bricks are cut off the top of wall 5.

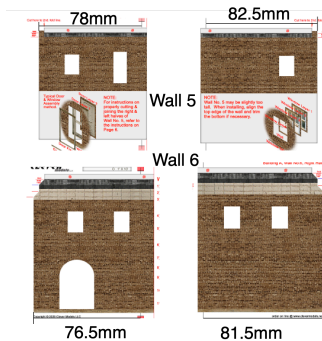
A tab was added to wall 4 by capturing and printing the wall 1 tab, cutting it out and physically rotating it around and then affixing it in place to the paper printout of wall 4 using a glue stick.



Look closely at the photo. The paper printed tab can be seen affixed to the left end of the parapet on the second story of wall 4 using a glue stick.

To create this tab, a bit of wall 1, with the tab and vertical folds lines, was captured and printed. It was carefully cut out, rotated and affixed into the the correct position on wall 4. Glue was NOT applied to the whole cut out strip, just the tab area, and after gluing the tab into position, the excess paper was trimmed away.

## Problem 2



Building A's walls 5 and 6 parallel each other. Therefore they should be the same length, but they aren't.

Wall 5 is 160mm long and Wall 6 is just a tad over 158mm long.

Note that the screen captures aren't scaled accurately to each other, but the distances were accurately measured on the printed paper. This is the only building that I found with this problem.

To verify the issue, two pages of the kit pages "O Scale Cream City Building A Page 7 (Floor 1 & 2).pdf" were printed at 55%. They were carefully joined and measured. The long side of the floor was found to be 159mm long. That was right between the length of walls 5 and 6. The issue with the floor length was dealt with, and is discussed later.

The printed paper wall sections for walls 5 and 6 were **joined before affixing them** to card stock.

Joining the two parts of wall 6 is straight forward. The wall 6, left side, was cut off using the BLACK LINE on the right side of the piece. The wall 6, right side was cut off using the BLACK LINE on the left side of the piece. The piece that was cut off, with the windows on it, was set aside for later.

The two pieces of wall 6 were carefully aligned and joined with masking tape above the top and bottom of the wall textures. The joined wall measured the expected 158mm.

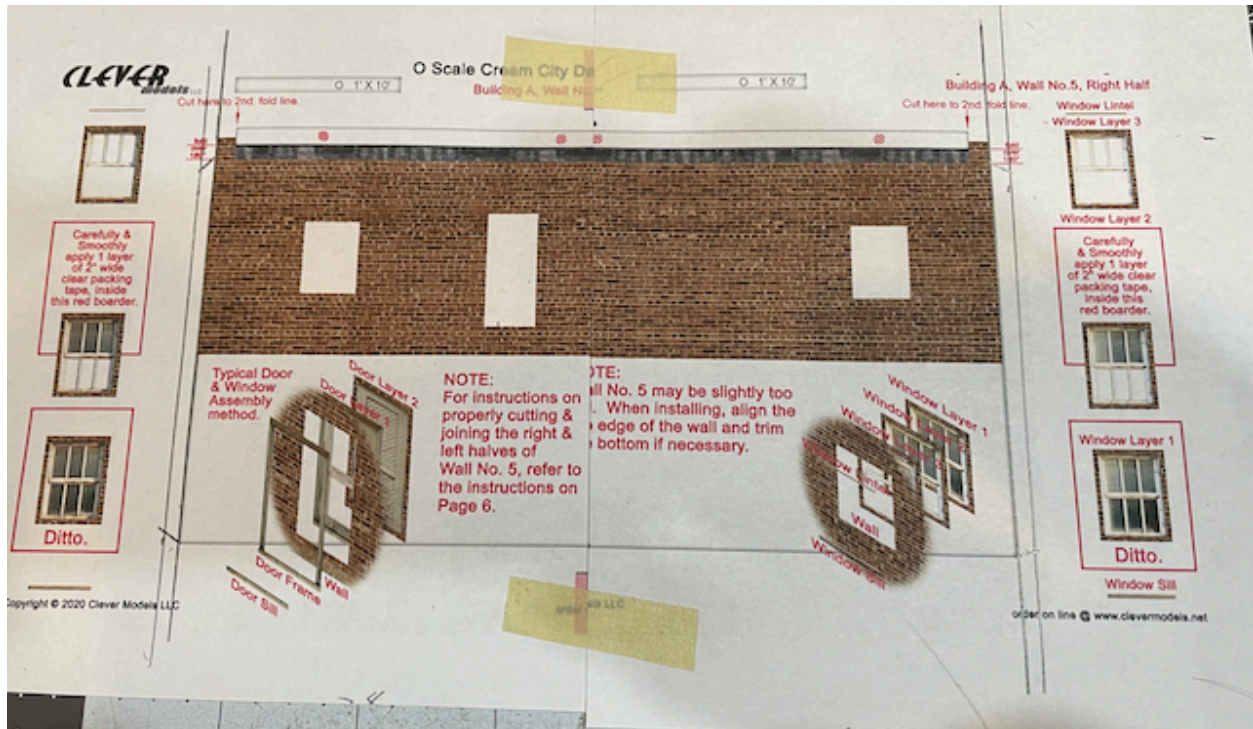
**Wall 5 needed two modifications** to create the two story portion of this structure.

The left half wall end was cut using the black line on its right side as the cut off guide.

To shorten wall 5 by 2mm, two pencil marks, top and bottom, were made 2mm to the right of the black lines at the left end of the right half of wall 5. The wall was cut



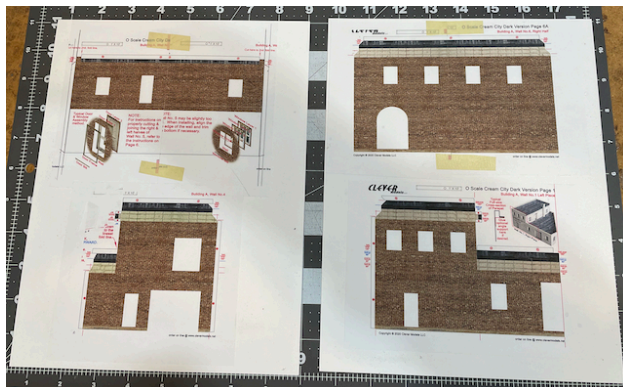
using those top and bottom pencil marks to align the ruler to then cut the new right wall section 2mm shorter than shown on the textures.



The two printed pieces of wall 5 were carefully aligned and joined with masking tape at the top and bottom of the wall textures. The joined wall measured the expected 158mm. The left side of the wall does not appear to be aligned along the bottom. It actually is and that area was just sticking up a bit when the photo was taken.

The wall 5 vertical line ends were extended to create new red fold lines (but they are in pencil). 3mm lines were drawn to parallel each new fold line and then angles added to create new tabs for gluing onto walls 1 and 4 respectively.

The window pieces on each side of wall 5 were cut off and set aside for later.



The length of walls 5 and 6 were verified as equal.

The printed papers were attached to card stock using spray adhesive. Before rolling with a rolling pin, wax paper was placed over the surface to be rolled.

Before cutting out the walls, they were trimmed to a better size for working with them.

### Embossing and Cutting Out the Walls for the Two Story Part of the Building

While the 12" metal ruler could be used as a straight edge for embossing, I prefer an [8" metal L-square](#). The L-square is thicker and doesn't move as easily as the 12" metal ruler. It is easier to hold firmly against the card stock and allows me to make an embossing depression line more accurately. After embossing, the card stock is pulled up against the L-square to form the fold line.

A piece of sheet styrofoam was used as a cutting board when a tiny piercing type cut needed to be made through the card stock to make marks on the backside of the card stock to guide the embossing fold lines on the backside of a wall. A [Fiskars' knife](#), with a [#11 blade](#), was used to make the piercing cut on the red fold lines.

An [awl](#), with its point rounded, was used to create the fold depression line.

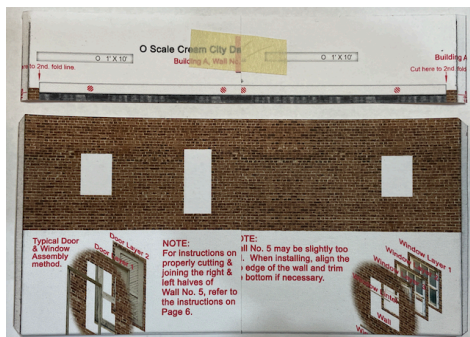
[My video, demonstrating embossing on YouTube](#) for the walls of the two story part of Building A, shows the method I used.

The very top of the wall red fold line is not necessary for this HO scale version. The fold-under reinforcement is cut off when cutting out the wall. The fold-under part is NOT necessary when using the craft foam board as the roof internal support.

All walls, except wall 5, were embossed in a similar manner, including walls 1 and 4.

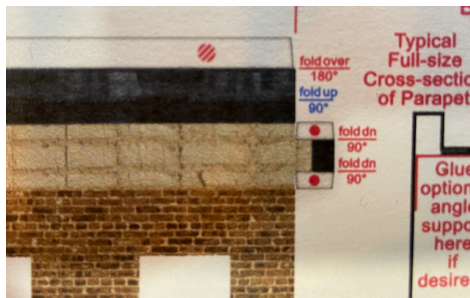
Wall 5 requires only two vertical folds. The inside pencil lines were pierced for embossing on the backside to create the wall joiners at the end on each side of the wall. This is [a link to a YouTube video](#) demonstrating what the folds looked like for wall 5.

Wall 5 was cut out a bit differently. After embossing the pencil lines at the end of the texture, the lower of the two horizontal short red lines, near the top of wall 5, was used as a cut off line, as the brickwork, at the top, brick ends of the wall, are NOT necessary.



When cut out, wall 5 looks like this.

The top of the wall was cut off as described above. The the cutoff part, with the masking tape on it, was discarded. The user created tabs, to attach the modified walls 1 and 4, can be seen on both sides of the wall 5 texture.



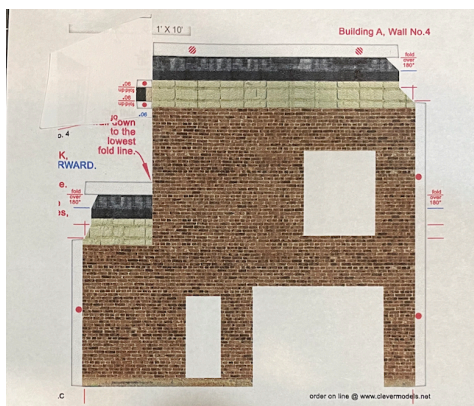
Before starting work on walls 1 and 4, note the shape of the fold under tab for the parapet end. The wall side itself actually ends at what becomes the top of the parapet. The same is true on the upper side of that tab. This must be taken into consideration when cutting the two story wall from the single story wall. I found that cutting the angle on the tab just a bit greater than drawn helped when folding the tab sides in and under the top of the parapet.



When constructing Building A in two separate sections, walls 1 and 4 have some issues when building the HO scale version. The issues needed to be addressed before walls 1 and 4 were embossed.

At the right side of the second story of wall 1, there are short vertical red lines above and below the building texture. Usually these lines indicate fold lines for embossing, but this part of wall 1 DOES NOT need a fold and will actually be cut off for this two section method of constructing Building A. Only the parapet tab needs to be folded. The way that I do it, the folding for the parapet tab is done **after** the two story section of wall 1 has been separated from the single story section of wall 1.

A proof of concept portion, of the upper part of the two story wall for wall 1, was created and used for the video demo that follows.



Remember that wall 4, shown at the left, already had a paper parapet texture tab added, as it wasn't originally there.

When embossing, don't forget the blue line on the front of the wall texture.

There is a [YouTube video](#) demonstrating how to cut out the previously embossed, two story walls to create the two story walls for the rectangular section of Building A.

The previously embossed walls 1, 4 and 6 were cut out.

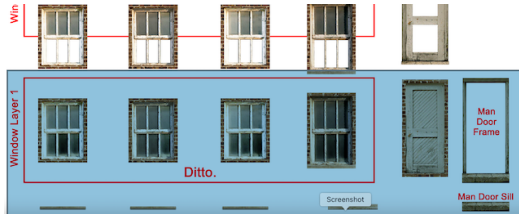
All of the cut side edges of the walls, that might show, were darkened using the side edge of a sharpened No. 2 pencil lead.



Dashed lines were created on walls 1, 4 and 6 18mm from the top of the wall as cut out at this point with the fold-under tabs removed. [3 x 2 x 1 blocks](#) were laid on the walls to flatten the folds while the 18mm measurements took place. Wall 5 does NOT need the dashed lines. The reason for the dashed lines is explained shortly, but each of those three walls needed them.

While I could have used the 12” metal ruler for this, I prefer a [12”, transparent, plastic ruler](#). It allows me to align the ruler easily with the top of the piece and be more accurate.

### What Needs to Be Printed for the Doors and Windows



For Wall 1, the two story section, the part of page 1A that was captured is shown. It was printed at 55%. Note that the window on the right side of the Ditto box is larger. Later on, it is used for the one story section of wall 1. Set it aside for now.

The Wall 5 door and two windows were already printed and set aside.

For Wall 4, the two story section, print all of page 4A, at 55%.

For Wall 6, the two story section, two windows were already printed on page 6A and set aside. The two windows in the Ditto box on page 6B were captured and printed, at 55%.

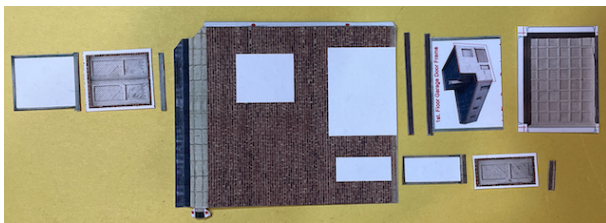


In the Full Size Wall Elevations folder, the PDF titled “O Scale Cream City Building A (Wall No.6L Partial Full Size Elevation)” was opened. The arched door was captured and printed, at 55%.

I felt that the arched door needed a sill, and there is not one in the Building A kit parts. Building D, “O Scale Building D Page 6A (Rear Wall Details).pdf”, does have a sill for the arched door. The sill was captured and printed, at 55%.

Once printed, I like to make the doors and windows one wall at a time.

Spray adhesive was used to affix page 4A to a piece of card stock. Everything was cut out except the 2nd. Floor Door Layer 1, the 1st. Floor Garage Door Layer 1 and Man Door Layer 1. **DO NOT CUT OUT THE WHITE AREAS INSIDE THE 3 DOOR FRAMES!** Darken all the edges on the three door frames, using the side of a No. 2 pencil lead. Darken the Man Door Sill and the 1st. Floor Garage Door Lintel. Set the pieces aside in a plastic snack bag with wall 4.



The photo shows wall 4 and all of its door pieces before they were put into a plastic snack bag and set aside with wall 4.

A glue stick was used to attach the 2 story wall 1 pieces to a piece of some card stock. They were cut out. Only the door frame and its sill needed their edges colored with a No. 2 pencil lead. The large window was stored and set aside for later use.

Note that there is a bit of white area left around the door layer textures, as shown in the previous photo. This little bit of white area is also left around the windows. This area is where Tacky Glue is applied, with a wooden toothpick and rubbed with a finger to spread it thinly, to affix the windows and doors to the backside of the walls. A rag was kept on hand to wipe the glue from the fingers.

A glue stick was used to attach the two windows from Page 6A and 6B, the arched door and the door sill from the elevation page to some card stock. Once affixed to the card stock, from the elevation print, cut exactly around the outside of the frame of the arched door to the bottom of the wall. Scissors were used to cut around the arched shaped frame at the top of the door. Only the door and its sill needed its edges darkened. The parts were set aside with wall 6.

The Man door and Man door frame and windows from pages 5 and 5A were affixed to card stock with a glue stick and cut out. The man door frame edges were darkened with the side of a No. 2 pencil lead. The parts were set aside with wall 5.

### **Gluing on the Door Frames**

The door frames and arched door were glued into position on all four walls using a thin layer of Tacky Glue. **Do NOT install the sills and the lintel yet.**

### **Cutting the Openings in the Walls for the Window and Door Openings**

[A YouTube video](#) was created to demonstrate my technique for cutting the openings for the doors and windows into the walls. It also shows how I install the doors and windows on the backside of the walls using Tacky Glue. The arched door, created from the wall 6 elevation, does NOT get cut out. The doors swing out on this type of door, therefore the hinges are on the outside, unlike the other doors and windows. All of the door and window openings were cut out.

### **Installing the Doors, Windows, Door Sills and the Lintel**

After cutting the openings in one wall, and coloring the cut edges of the openings, the parts for that wall, which had been affixed to card stock and set aside in a plastic snack bag, were affixed to that particular wall using a thin coat of Tacky Glue. All four walls were completed.

### **OOPS :-)**

While checking out the new floor Interior Support size, that I created using craft foam board, I saw that wall 5, which was completed in the video, was too short. I completely remade wall 5 and it is now the same length as wall 6, 158mm, and the same as the long sides of the floor, intermediate support and the roof.

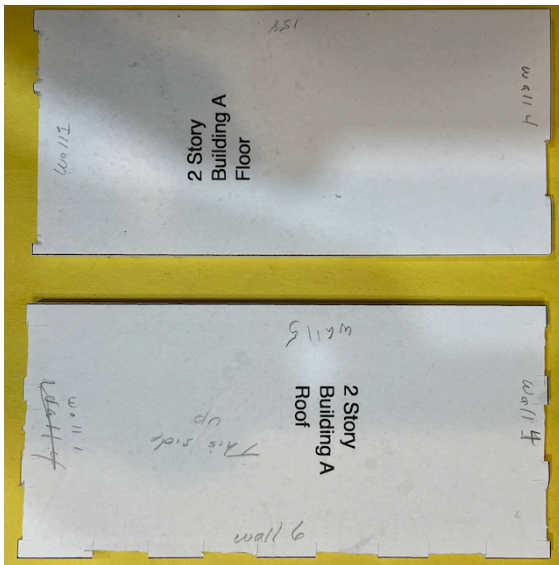
I put this here to let the reader know that things don't always work out well the first, or even second time, and that sometimes they have to be redone.

## Preparing the Craft Foam Board Interior Supports; Floor, Intermediate, and Roof

Print the PDF, that I created, titled, "[Building A-2 Story-Roof-Floor-alt2](#)". Affix it to a piece of craft foam board using spray adhesive. The PDF has three Interior Supports on it. Cut out the roof, intermediate and floor pieces.

I originally only used two Interior Supports consisting of a roof and a floor for the two story part of Building A. That proved inadequate for a 2 story structure. In the following photo, only the roof and floor are shown, but the intermediate Interior Support also needs the thin slots for doors and/or windows. How to create, position and install the intermediate Interior Support is discussed later.

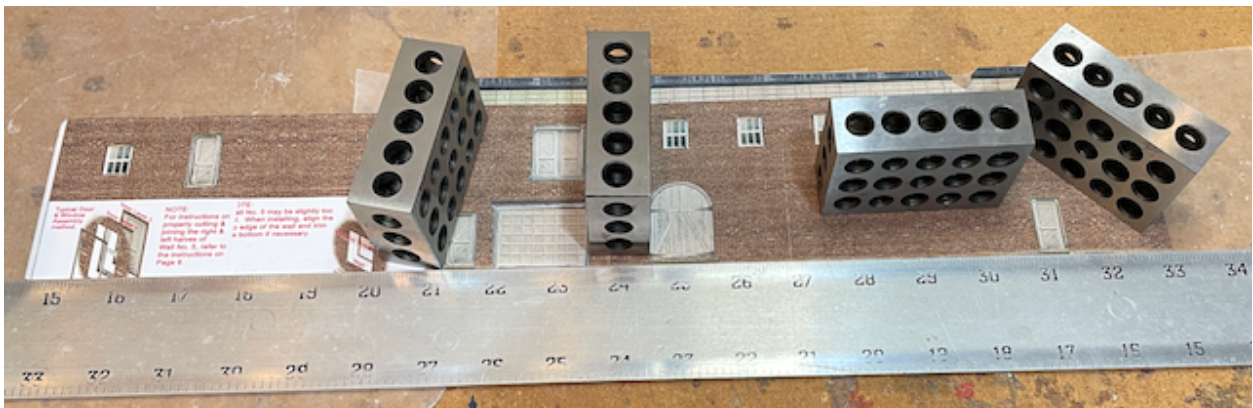
Thin slots, for doors, needed to be cut in the floor piece so that the wall attaches to the edge of the foam board floor. Thin slots are also needed for windows in the roof piece and for the intermediate Interior Support.



Each craft foam board Interior Support slot position was marked by holding the foam board piece to the associated wall, and then the narrow slots for the doors and/or windows were cut out using the styrofoam sheet as the cutting board. Piercing and "sawing" type cuts were used to cut out the slots.

The photo shows the slots. It also shows that I made a mistake and slotted the roof wall at the wrong end. It was corrected by putting the wall 4 slots at the correct end. The intermediate support was also slotted.

[My video, demonstrating Interior support slotting on YouTube, shows the method used.](#)





## Joining the Walls

Wax paper was placed on the wall assembly surface. A [48 in. Aluminum Ruler](#) was laid over the wax paper and weighted down. It is used as a guide for the bottom of the walls. A thin coat of Tacky Glue was spread on the tab on wall 4. The bottom of wall 4 was aligned to the rule and held in place with a 1-2-3 block. Wall 6 was aligned with wall 4, pressed down and held in place with a 1-2-3 block.

A thin coat of Tacky Glue was placed on the tab on wall 1. Wall 1 was slid into position, wall 4 pressed down and a 1-2-3 block placed between the two walls.

A thin coat of Tacky Glue was placed on the user created tab on wall 5. Wall 5 was slid into position, wall 4 pressed down and a 1-2-3 block placed between the two walls.



The assembly was left to dry.

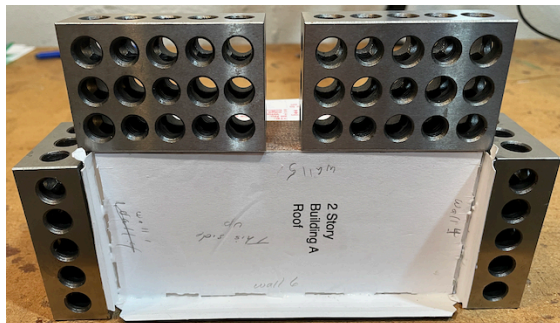
Wax paper was placed between the inside walls. Tacky Glue was applied, in a thin layer, on the tab on wall 5. Wall 5 was aligned with wall 4, pressed down and 3 x 2 x 1 blocks were placed on the two walls and at their joint.

The glue was allowed to dry.

## Installing the Interior Supports

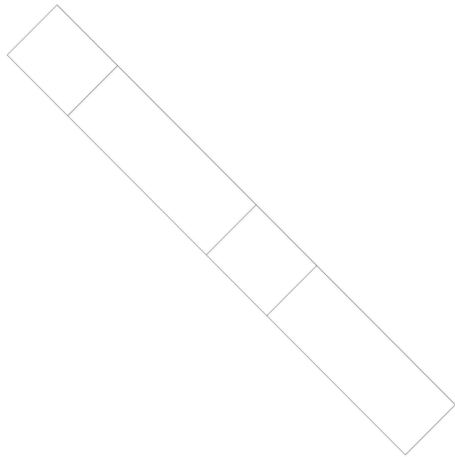
The roof was trial-fitted.

Tacky Glue was used around the perimeter of the roof piece. The roof was fitted to the walls so that its top came to the 18mm marks on walls 1, 4 and 6 and was even with the top of wall 5. The structure was turned, as shown



in the photo and 3 x 2 x 1 blocks were used to hold everything in place while the glue dried.

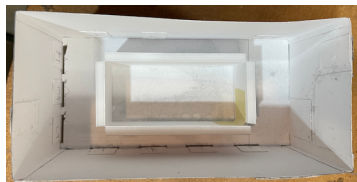
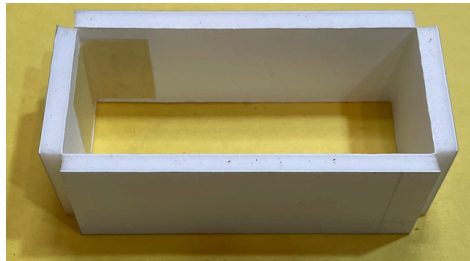
### Positioning the Intermediate Interior Support



I created a [PDF of a simple box](#) to be constructed out of craft foam board. **The PDF is to be printed at 100%**. It is then affixed to a piece of craft foam board with spray adhesive.

To make the box, **cut the three inner cross lines only 1/2 way through the craft foam board**. Cut out the outline of the box. Fold the corners in and put a piece of masking tape, on the inside corner of the box, where the short side and long side meet.

The box is flimsy and not at true right angles. That doesn't really matter. The purpose of the box is to just hold the intermediate Interior Support the correct distance from the bottom of the roof when it is to be glued in.



The box was Tacky Glued to the bottom of the craft foam board roof. Tacky Glue was placed on the edges of the box that attach to the bottom of the craft foam board roof. The box is approximately centered on the foam board roof and glued to the bottom of the craft foam board roof.



The intermediate Interior Support was trial fitted and the window and door slots marked and cut out. The intermediate support was then Tacky Glued in by applying glue to its edges and on the box edges and then pushed in so that it rested flat on top of the box.

3 x 2 x 1 blocks were used as weights.



After the intermediate wall support was dry, Tacky Glue was applied around the floor edges. The floor was positioned, using a toothpick as a pry, when necessary, so that part of the floor craft foam board was sticking below the walls on each side. Wax paper was placed on the assembly surface. The structure was set flat onto the wax paper, which pushed the floor into place. The sides





were held with 3 x 2 x 1 blocks to dry.

Tacky Glue was put on the parapet fold-under end tabs and the bottom of the black 90 degree section that attaches to the roof. The parapets were manipulated into the proper positions, trying to keep the tops of the parapets parallel with the ground. Straight pins were used to hold the parapet ends and two 45 degree angles at 90 degrees. The assembly was set on wall 1 and a 1-2-3 block was placed in the corner of the parapet so that both angle joints were pushed together. Everything was left to dry.

Adding the intermediate Interior Support really helped. Photos of the third build of Building A, at the end of this document, demonstrate this.

### The Roof Texture

The roof texture, “O Scale Cream City Building A, Page 9 (Roof 2)”, was best done with two prints. The large portion of the roof texture was captured and printed, at 55%. Then, the smaller portion of the roof texture was captured and printed, at 55%. The A-B sides of each print were cut. The papers were aligned with the A-B sides. The A side was aligned into a straight line and the papers carefully taped together. They were NOT CUT TO THE EXACT SIZE YET. The joined pieces were trimmed to a more manageable size.

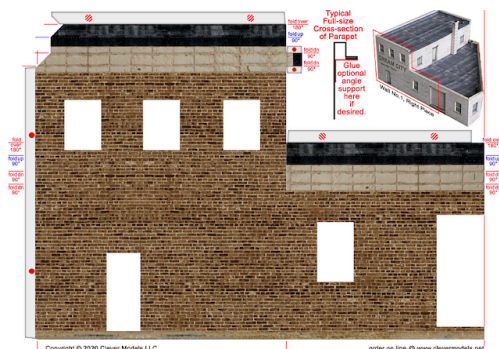
The roof texture paper was affixed to the card stock using spray adhesive. The roof piece was carefully cut to the correct size. Mine ended up being 69mm x 149mm.

A [black, Fine Point Sharpie](#) was used to color the cut edges of the roof texture piece, once cut to size, as well as the very top cut edge of wall 5.

Tacky Glue was spread thinly on the bottom of the roof texture, paying particular attention to the edge that ends over the top of wall 5. The roof texture piece was pressed into place and 3 x 2 x 1 blocks were placed on the roof texture over wall 5 to be sure it was pressed down very well.

The rectangular section for Building A was complete.

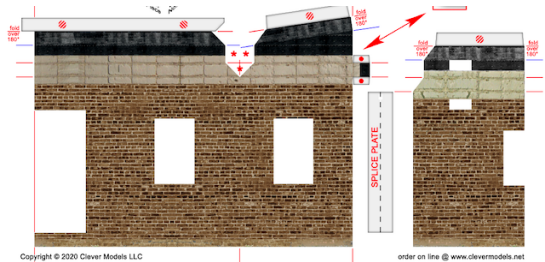
### Building the Triangular Shaped Section of Building A



For all of the following, Capture, using Acrobat Reader Edit>More>Take a Snapshot when it is beneficial. Print each capture at 55%.

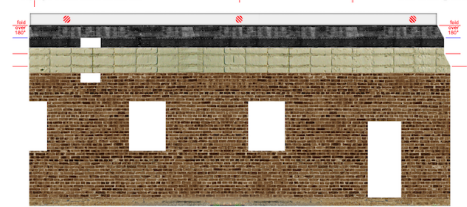
All of the wall 1 PDF was printed at 55%. Remember that the window for this portion of the wall 1 single story section was previously cut out and set aside.

The whole page was needed because the lines for embossing the single story part are at the left

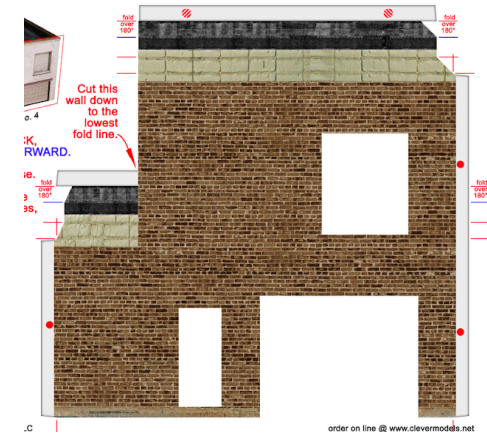


end of wall 1. Also it provided a longer alignment line when cutting off the 2 story part from the 1 story part.

This portion of wall 1, 2 and 3 was printed at 55%. Once this piece was affixed to the card stock, and the parts were being cut out, the Splice Plate was cut around. The center line of the Splice Plate was embossed. The Splice Plate was cut out the and set it aside.



This portion of wall 3 was printed at 55%.



This portion of the wall 4 PDF was printed at 55%. It similar to wall 1 because it needs the lines for embossing the single story part. Also, it provides a longer alignment line when cutting off the 2 story part from the 1 story part. This wall was quite short when completed.



My page 5A was **PRINTED AT 100%**. The long lines at the ends of this wall are for embossing, on front side of the wall. That creates attachment tabs on wall 5A.

The parts of walls 1 and 3 were joined before affixing them to the card stock.

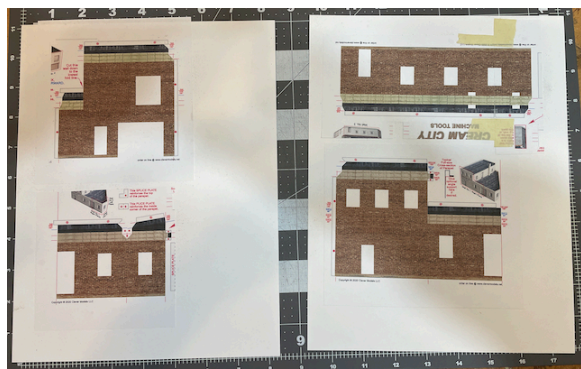
The prints were affixed to the card stock with spray adhesive.

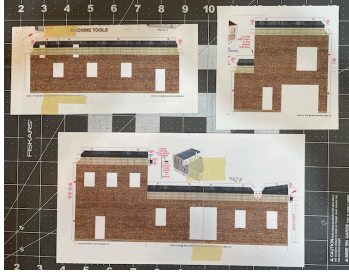
The photo shows the printed textures affixed to the card stock with spray adhesive. The two parts for wall 3 were joined while just printed and then affixed to the card stock as

one piece. Unfortunately, this error is shown in the photo.

I forgot to join the left part of wall 1 and the right part of wall 1 that has wall 2 attached. I had to reprint and redo them.

Before embossing, I like to cut the card stock down to more manageable sizes.





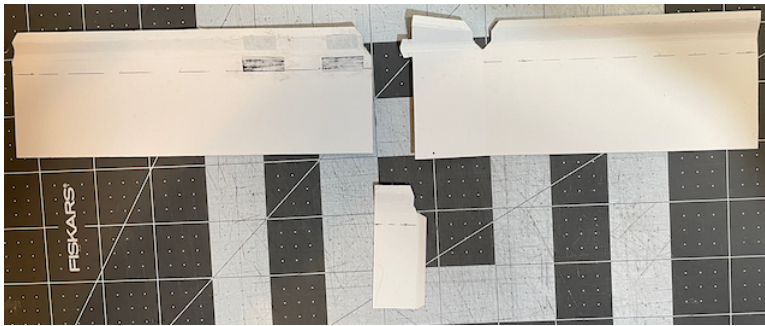
At the bottom of the photo is the remade wall 1 and 2 combination. The joined Wall 3 is at the top left and wall 4 at the top right.

Each wall was embossed and cut out.

Remember that the white, with red asterisks, fold-under reinforcement tabs, at the top of each wall texture, are not used and are cut off.

Also, **Remember that my page 5A is to be printed at 100%**, but it needs the user created end tabs embossed on the printed side before cutting out of the card stock.

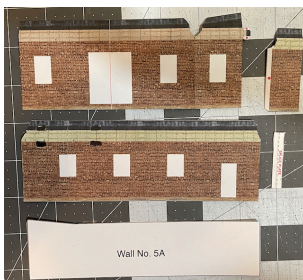
Color all of the cut edges with the side of a No. 2 pencil lead. If all of the cuts are colored, none can be missed and show up white on the finished structure.



After coloring the edges of the cut scupper holes with a No. 2 pencil lead, computer paper was colored black, with a black Sharpie, and the scupper holes in wall 3 covered, instead of trying to

make the tubes for the scuppers.

Walls 1, 3, and the short wall 4 were turned over. A dashed line, 18mm from the top, was drawn on each one. Wall 2, that was attached to wall 1 doesn't need markings.



The photo above shows walls 1, 3 and 4 marked 18mm from the top and the holes for the scuppers covered with blackened paper.

The Splice Plate and wall 5 can be seen in the photo of all of the wall pieces at this time. The Splice Plate was affixed to card stock with Tacky Glue, embossed and cut out.

The door pieces and windows were captured from pages 2A and 3A, and printed at 55%. They were affixed to card stock using a glue stick. For the large door in the single story wall 1, I used the door sill from Building D, page 1A. They were cut out and the edges of the door frames colored with the side edge of a No. 2 pencil lead.



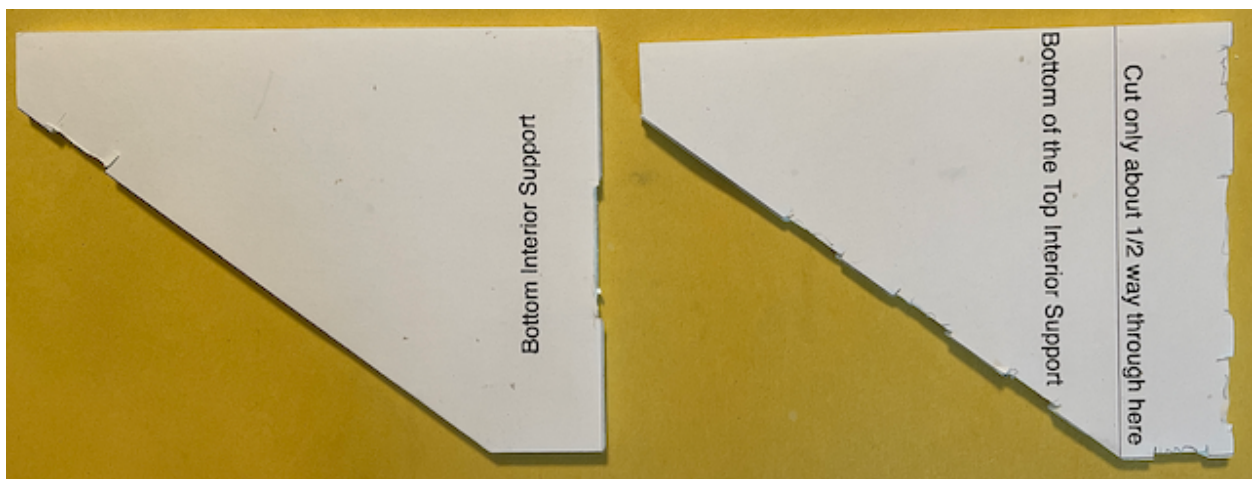
The door frames were attached to walls 1 and 3 with Tacky glue.

The openings for the windows and doors were cut in walls 1, 2 and 3.

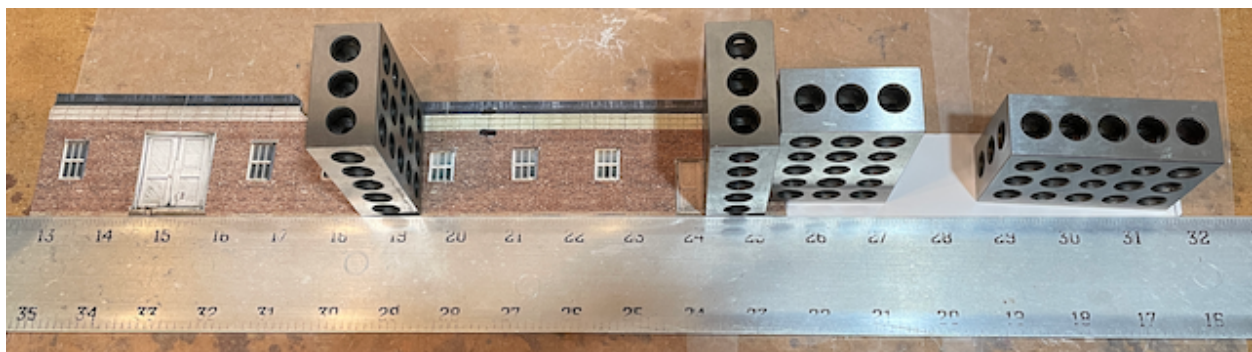
The windows and doors were Tacky Glued to the backside of the walls.

My file, [Interior-Supports-alt2.pdf](#), was printed at 100%, affixed to craft foam board with spray adhesive and the two Interior Supports for this 1 story section of the building cut out.

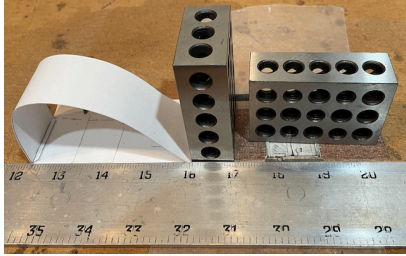
The folds, at the end of wall 5, were folded over 180 degrees and a No. 2 pencil lead, sideways, colored the fold line of the edge side of this wall. This line, on the backside of wall 5 is used to align walls 1 and 4 with wall 5 when the walls are assembled.



Before the walls were assembled, each wall side was used to mark the roof and floor Interior Supports for the door and window tiny slices to allow the edges of the Interior Supports to fit against the walls without interference from the doors and windows. The thin cuts were made in the roof and floor Interior Supports for the windows and doors. A [YouTube video demonstrates cutting these slices](#) using a sheet of styrofoam as the cutting board.



The walls were assembled over wax paper using a 4' metal rule to align the bottoms. Tacky Glue was used on the tabs and 3 x 2 x 1 blocks were used to hold the



walls in place until the glue dried. The Splice Plate was used between walls 2 and 3.

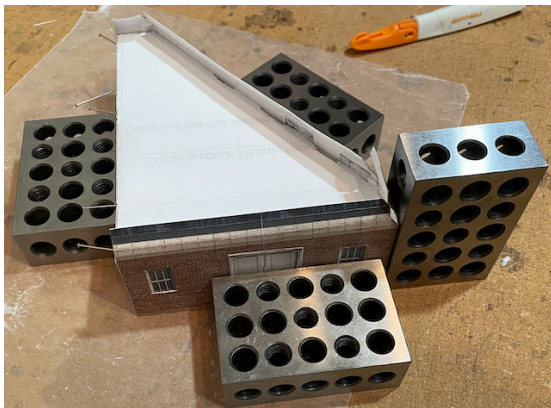
Wax paper was placed between the walls at the joint between wall 5 and wall 1. The Wall 5 tab was glued to wall 1. 3 x 2 x 1 blocks held the alignment. The joint was allowed to dry.

The roof Interior Support was trial fitted.

Showing a good fit, the roof Interior Support was attached with Tacky Glue. The top of the roof support is even with the top of wall 5, including the angle. Straight pins were used to pin wall 5 to the craft foam board roof support and hold it in place. The rest of the top of the roof aligns with the 18mm down from the top marks. There is a noticeable down slope from wall 1 towards wall 4. That slope terminates at the end of wall 2. The roof was blocked up with 3 x 2 x 1 blocks and a brick and allowed to dry.

The floor Interior Support was trial fitted.

Being a good fit, the floor support was attached with Tacky Glue in the same manner as the 2 story part of the building.



The structure was placed over wax paper, which was positioned on the assembly surface, and the floor pushed into its final position. 3 x 2 x 1 blocks were pressed to walls 1, 2, 3 and my 5A and the structure was left to dry. The pins are still in wall 5 in the photo.

The parapet end tabs, on the wall 2 fold down parapet end, were folded in and the end tab folded down and Tacky Glued in. All of the rest of the parapets were folded over, glued and straight pinned in place.

The roof texture was captured, printed, at 55%, assembled enough to be affixed to card stock with spray adhesive and then cut out.

The roof texture, on the card stock, was trimmed to the proper size and the edge that rests on wall 5 was sanded a bit, for a better fit to the two story section.

A [black, Fine Point Sharpie](#) was used to color the cut edges of the roof texture piece on the card stock.

Tacky Glue was used to apply the card stock roof texture to the roof and 3 x 2 x 1 blocks were used to press the textured card stock to the craft foam board roof.



The two sections of the building were aligned and then Tacky Glued together.

The chimney, on page “O Scale Cream City Building A Page 12 (Miscellaneous Details).pdf”, was captured, printed, affixed to card stock using a glue stick and assembled as shown on that PDF. It was reduced in length when cut out. It was Tacky Glued to the roof of the 1 story building near the door in wall 5, using a small metal triangle to align it.

The signage on the “O Scale Cream City Building A Page 3 (Wall No. 3 Right Piece).pdf” was captured, printed, affixed to card stock using a glue stick and turned into a simple sign for the side of the building. The edges of the sign were darkened with the side of a No. 2 pencil lead and then glued onto wall 6 with Tacky Glue.

Building A was now completed, except for more roof detailing and spray painting with [Krylon K05547007 COLORmaxx Acrylic Clear Finish](#). (But I wasn't ready to do this yet!)

These photos, of the second construction, of Building A, constructed in this manner, demonstrate why I believe the intermediate Interior Support is necessary.



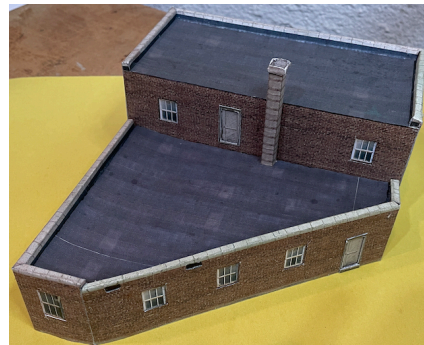
Wall 1



Wall 1 Roof View



Walls 2 and 3



Walls 2 and 3 Roof View





Wall 4

Wall 6

These photos, of the third construction of Building A, using an intermediate Interior Support in the two story section, for Building A, demonstrate the effectiveness of the intermediate Interior Support in keeping the walls from bowing.



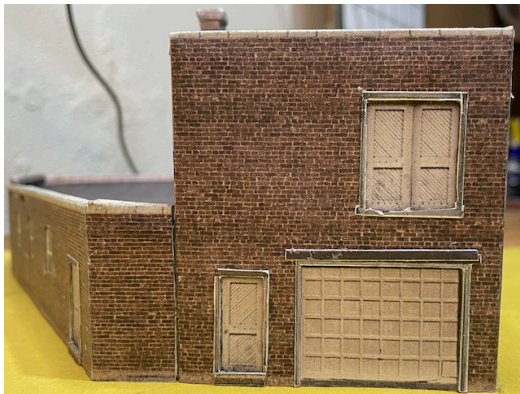
Wall 1

Wall 1 - aerial view



Wall 3

Wall 3 - aerial view



Wall 4

Wall 6

## Adding a Triangular Section From Building B to the Third Building A



After finishing building A for the third time, I ran across this [photo from the Clever Models Website](#).

It appears that the “leaning” chimney was a problem on the prototype as well.

Using the intermediate Interior Support really helped a lot.

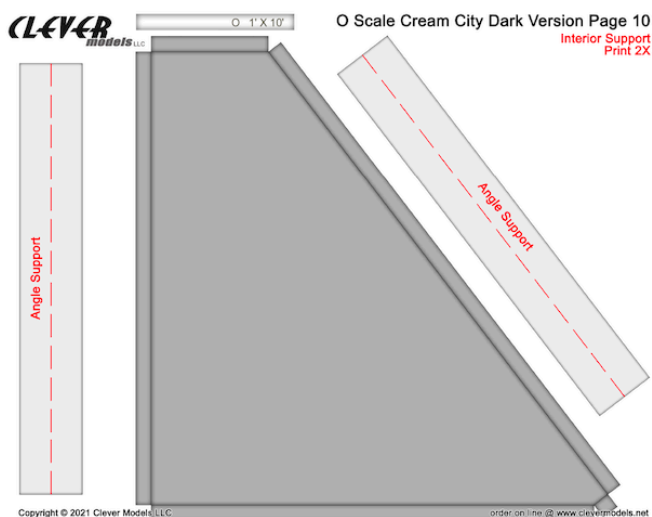
Once I found these photos, I decided to build the triangular section for Building B and add it to my 3rd Building A, as shown in the Clever Models photos of the prototype.

About a month ago, my original Building B was completed as a standalone structure.

I remembered that the triangular section, which is really an oddly shaped pentagon with one wall being only 4mm long, was a problem.

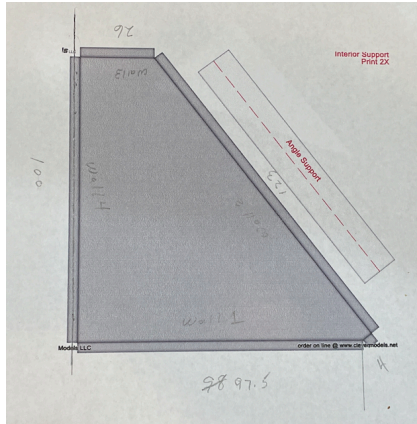
Building B, pages O Scale Cream City Dark Version Building B Page 7 (1 Story Wall No.2).pdf, O Scale Cream City Dark Version Building B Page 8 (1 Story Wall No.2, 3 & 4).pdf, O Scale Cream City Dark Version Building B Page 9 (1 Story Wall No. 4 & 1).pdf, and O Scale Cream City Dark Version Building B and two Page 10 (1 Story Interior Support).pdf were printed at 55%.

Two problems were discovered with careful measurements of the printed texture pages.



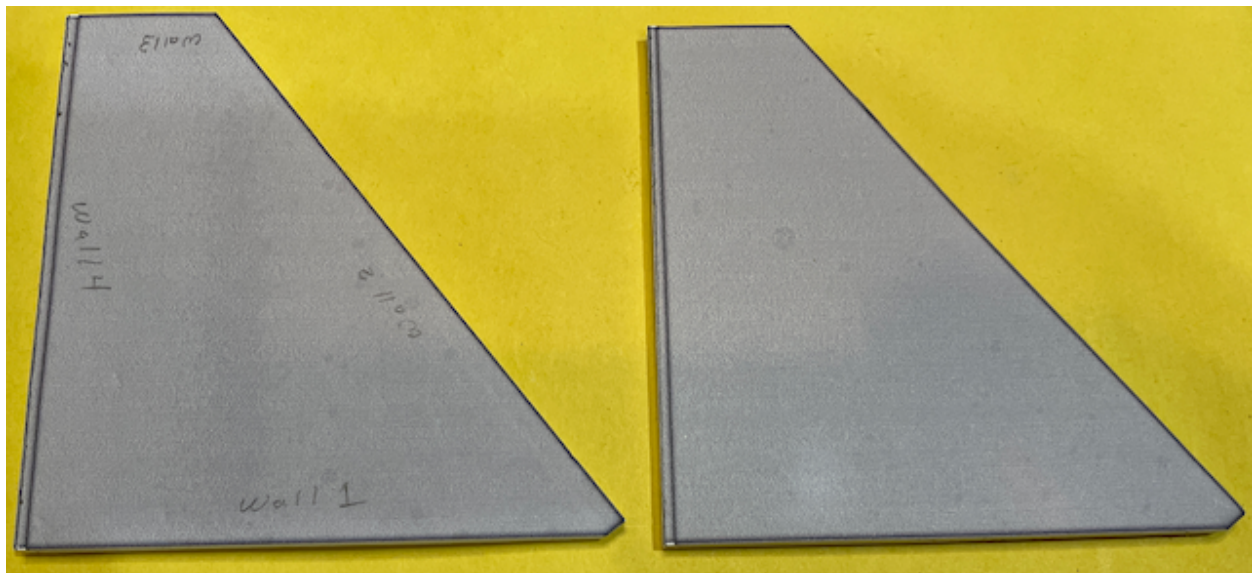


The lines for the Interior Support on Page 10 are very thick, compared to the red embossing lines on the Angle Supports. The Interior Support should be cut out using the outside of the black lines, NOT splitting the difference nor cut on the inside.



The other problem was that wall 1 measured 98.5mm and the floor for wall 1 measured 97.5mm. A pencil line was created 1mm to the outside, left in the photo, of the wall 4 line so that when cut out, once affixed to the craft foam board, wall 1 and its Interior Support are the same length. This was done to both of the Interior Supports.

The Interior Support printed pages were trimmed to a more manageable size, affixed to craft foam board with spray adhesive and cut to size, using the outside of the lines as the guide for cutting with a single edge razor



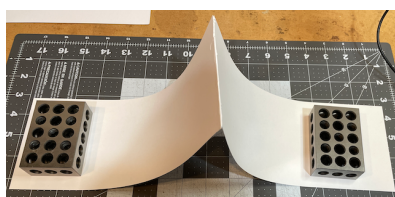
blade

Note the extra millimeter on the left side and that the black lines are still there. If need be, they can be sanded with a sanding block with fine sandpaper attached to adjust them to the exact size. The Interior Supports were set aside.

In this instance, the added length to wall 1 was just a bit too much. Wall 4 was sanded with a sanding block, a little at a time, to achieve a perfect fit.

All three printed pages for the walls were joined with masking tape before affixing them to the card stock, and, when joined, they are longer than a single sheet of card stock.

A single sheet of card stock was split lengthwise down the middle. The two pieces were joined together with masking tape on what



becomes the backside.

The piece was turned over and “tented” to open the joint. Tacky glue was applied, with a toothpick, to the open joint. 3 x 2 x 1 blocks held the card stock in the tent shape while gluing. The blocks were removed and the excess glue wiped off the joint, once it was on a flat surface. Wax paper was placed above and below it. 3 x 2 x 1 blocks were placed on the joint and the glue was allowed to dry.

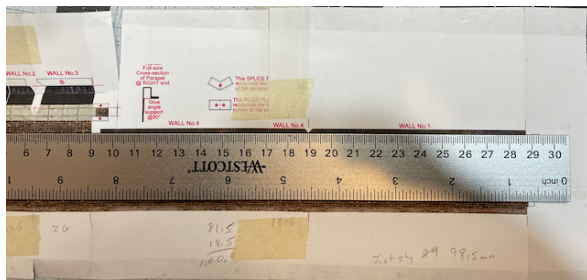
The printed wall pieces were trimmed to a more manageable size.

They were cut and joined with masking tape on the non-textured areas. They were in the order of, 2, 2-3-4 (that’s one printed page), 4, and 1. Masking tape was applied to the backside of the joined prints. All of the joined wall pieces were then affixed to the card stock using spray adhesive.

Embossing was completed for the vertical folds first and then the horizontal embossing.

A horizontal cut was made, to the left across from the left end of the lower portion of wall 2 and out of the card stock. That cut separated the upper and lower portions of that wall for the vertical embossing.

A vertical cut was made, up from just above wall 4 and outside the tab’s embossing marks all the way across the card stock. That cut separated the upper and lower portions of the walls for the horizontal embossing.



A portion above walls 4 and 1 was cut off next. A straight edge was aligned with the red horizontal mark at the right end of wall 1 with the bottom of the “notch” at the left end of wall 4. That portion was cut off.



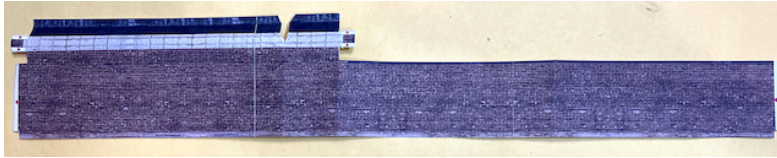
The photo shows the portion cut off of the tops of walls 4 and 1 and around the parapet tab and up and out of the card stock.

The parapet tab and the angled area between walls 2 and 3 were cut out next.

Everything except the bottom of the walls was cut out. That included the white fold-under tabs at the tops of wall 2 and 3.



Blue painters' tape was put on the back of the joined walls and the walls stuck to the cutting mat. A 4' metal rule was aligned to the bottom of the walls and was used to cut the bottom of the walls free from the extra card stock.



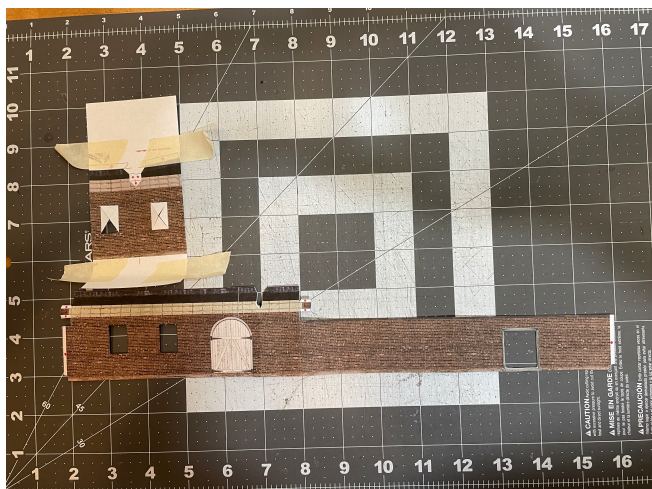
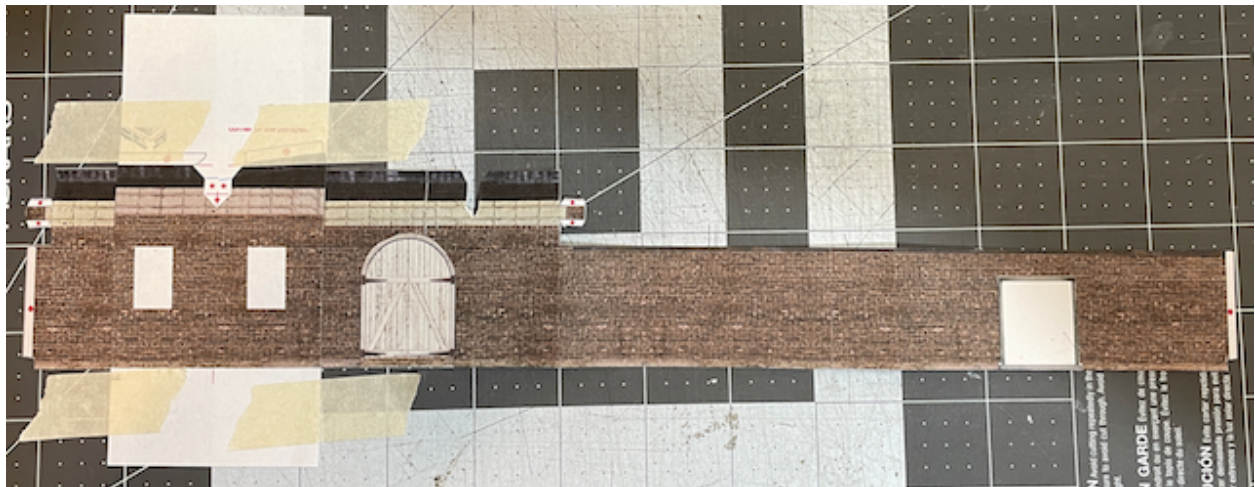
The joined walls are shown ready for their doors and windows.

The 18mm dashed lines were drawn on walls 2 and 3 and verified by folding walls 1 and 4 back over walls 2 and 3.

The doors and windows and their positions were “freelanced” onto walls 1 and 2.

The joint in wall 2 was very noticeable, but not in wall 4 where it did not really matter. The door from Building A, Elevations O Scale Cream City Building A (Wall No.6L Partial Full Size Elevation).pdf, was printed at 55%, affixed to card stock with a glue stick, cut out, its edges colored and then glued to wall 2 with Tacky Glue.

The Building A, 2nd floor door, O Scale Cream City Building A Page 4A (Wall No. 4, Details) was prepared for wall 1.



A template was made for cutting 2 window openings in wall 2 using a captured part of Building A, walls 1 and 2, O Scale Cream City Building A Page 2 (Wall No. 1 Right Piece, Wall No. 2 and Wall No. 3, Left Piece). The door opening in wall 1 and window openings in wall 2 were cut out.

The windows were captured from

Building A, O Scale Cream City Building A Page 2A (Wall No. 1 Right Piece, Wall No. 2 and Wall No. 3, Left Piece, Details).pdf.

The doors and windows were captured, affixed to card stock with a glue stick and cut out.

Once the edges of the cutouts were colored with a No. 2 lead pencil, the door and windows were installed on the backside of the wall using Tacky Glue.



The floor piece was held in place and was measured for the door slit in the floor piece for the door in wall 1. Note the scribbling between the pencil width marks. The scribbles come in handy when a lot of slits must be added to a particular side. There is a [video showing how to cut the slits](#) using the styrofoam sheet as a cutting board.

Walls 1 and 2 have tabs at each end where they join. I did not find this useful in joining the two walls. The joining tab on wall 1 was carefully, and exactly, removed.

Wall 1 was carefully aligned and joined to wall 2 with a very thin coating of Tacky Glue on wall 2's joining tab. The walls were held together, by hand, until the glue dried enough to let go, which didn't take long at all, because just a thin coat of glue was used.

Trial fitting showed that both the floor and roof Interior Supports needed just a bit of wall 4 sanded with a sanding block to achieve a perfect fit for the length of wall 1.

The roof craft foam board Interior Support was glued in using Tacky Glue on its edges. The top of the support was aligned with the 18mm dashed lines on walls 2 and 3 and then to the tops of walls 4 and 1. The structure was set on the building surface. The roof and walls were pressed together using 3 x 2 x 1 blocks to apply pressure to all of the sides.

The floor Interior Support was installed in the same manner, once the glue had dried for the roof. A toothpick was used as a pry to align all the edges of the Interior Support for the floor to protrude just below the walls. The structure was pressed down on wax paper on the building surface to move the floor to its final position.

Once the floor Interior Support was dry, the parapets were trial fitted. It took a long time to get the parapet at the end of wall 2 to be acceptable because of the short 4mm wall. Once satisfied with the parapet fit, they were Tacky Glued in place.

The black part of Building B, O Scale Cream City Dark Version Building B Page 11 (1 Story Roof).pdf was roughly cut out and affixed to card stock with spray adhesive.

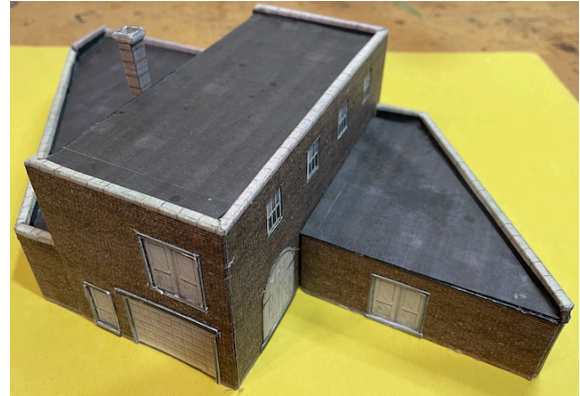
It was cut to shape and trial fitted.



Once a good fit was achieved, the roof was Tacky Glued in place and allowed to dry.

The finished section of the triangular shape of Building B was glued to Building A, per the Clever Models' photo at the beginning of this section. Its wall 3 was NOT aligned with Building A's wall 1 as shown in that photo.

The following photos show Building B's "triangular" section glued to the third completed Building A.



Once the techniques used for Building A were mastered, converting the O scale Buildings B, C and D to HO scale were easier, much easier.

All of the structures to date. (07/16/23)



All of the structures still need roof and external details and signage.

They also need at least 3 coats of Krylon K05547007 COLORmaxx Acrylic Clear Finish.

