



Korber Models

Scale Model Railroad Structures

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Model 315 O Scale Grain Silo Instructions

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Introduction

Congratulations, you have purchased the Korber Models #315 Grain Silo. The Grain Silo is one of the classic Korber O Scale kits. This structure represents thousands of working silos seen along the tracks all across the nation featuring cement construction.

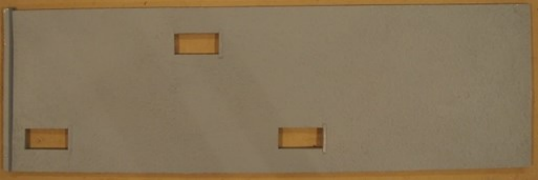
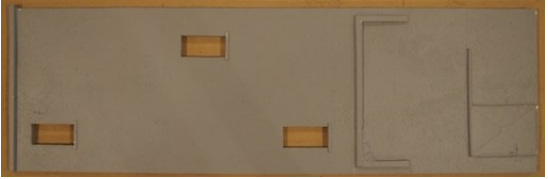




You can follow the simple, step by step instructions outlined in this document to easily assemble this great looking addition to your layout. We have covered not only the required key steps to build the building so you can get it on your layout the quickest, but have also included several optional steps to enhance the appearance. These enhancements are based on submissions from modelers just like you who have taken the Korber structures to the next level, and now by following a few extra steps you can achieve the same results.


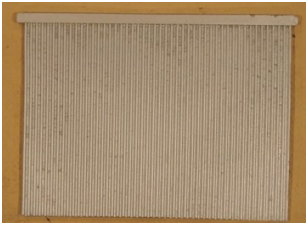

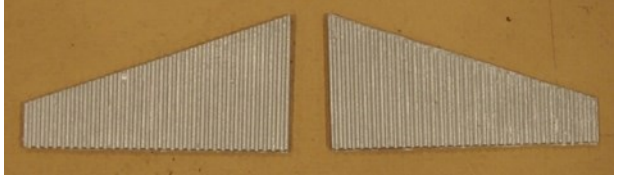




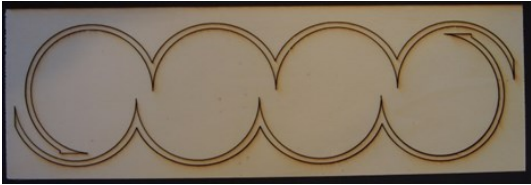

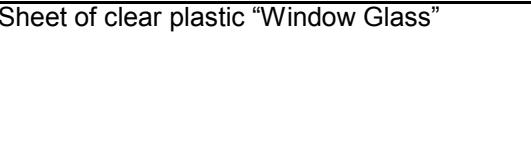





Before you start you may want to read through the instructions to get a feel for the things you will be doing, and the basic order in which they will be done. You are on your way to adding a centerpiece to your layout, so let's get started!



Parts list – (What's in the box)

Take a few minutes to locate all the parts in the box to make sure you have all the pieces you will need and that the quantities are right. You may also want to spread these parts out so that you have a small separate stack of each part to make it easy to find each as you start the assembly process. If you are missing anything, please contact us so we can get you any of the missing items.

| Qty | Description | Qty | Description |
|-----|---|-----|---|
| 2 | Tall wall with three windows  | 1 | Tall wall with three windows and freight door  |
| 1 | Tall wall - Blank  | 4 | Small "penthouse" walls with one window  |
| 2 | Long Silo top short walls with three windows  | 1 | Narrow Silo top short end wall  |

| Qty | Description | Qty | |
|-----|--|-----|--|
| 1 | Long narrow roof (corrugated)  | 1 | Loading Shed Roof  |
| 1 | Loading Shed Front face  | 2 | Loading Shed Sides (1 set—left and right)  |
| 1 | Roof material 3-5/8" x 3-5/8"  | 1 | Roof material 5-7/8" x 5-7/8"  |
| 8 | Silo Tubes 3" x 14-3/8"  | 1 | Silo roof - top  |
| 1 | Silo roof edges (makes two halves)  | 19 | Laser Cut windows (one sheet)  |
| 1 | Sheet of clear plastic "Window Glass"  | 1 | 5-1/8" 1/4x1/4 Loading Shed roof support beam  |
| 6 | 5-3/4" 1/4x1/4 corner supports & (1) Loading Shed base  | 6 | 2" 1/4x1/4 wood for roof support  |
| 2 | 1-1/4" 1/4x1/4 w/ 45 degree ends - Loading Shed Roof Braces  | 2 | 4-1/2" 1/4x1/4 Loading Shed roof post supports  |

Materials needed – (What else might I need that is not included)

The Korber #315 Grain Silo, like any kit, requires a few additional items to complete the construction. We have included a list here, including some color and brand suggestions based on our experience; however you may use any product that fits the function. Please also note that some items are listed as options such that they either make assembly simpler, or are needed only for optional steps

- Flat paint, choice of colors, for doors, windows, trim—RustOleum camouflage flat spray paints work well
Light grey (automotive grey primer) or cement color paint (Camouflage Khaki) for cement building walls, silos and silo roof cap
Flat Black (Camouflage Black) for window frames and long narrow roof and freight doors
Silver or Grey (Automotive Grey primer) for corrugated loading shed roof and sides
Flat Brown (Camouflage Brown) for exposed timbers on loading shed
- Paper towels or soft cloth rags
- Cyanoacrylate (CA) glue. Also known as Super Glue, Gorilla™ super glue works well
We really like the new Gorilla brand super glue because it is thicker than most super glues, and allows you to put in on a seam while holding the part in your hand, and will not run when you turn the seam on the side to put two pieces together. This glue is available in most retailers, including the larger home improvements stores
- CA glue accelerator (optional) turns any CA glue into quick set glue
- Medium grit sandpaper or emery board
- Testor's Dull-cote™ (optional)
- Small clamps (optional)

1 - Parts Preparation & Painting

Look over all the molded parts and remove any flashing that might be left on them. Flashing is the thin pieces of the molding material that may be left in window openings and along edges in the molded parts. This can quickly be removed with a razor type knife, a small file, or an emery board.

The parts in the kit will need to be painted to the final colors you select, and it is much easier to do this step before you assemble them. All the wall sections are colored in a cement grey and are ready to use: however, many modelers find a light coat of flat grey auto primer or Camouflage Khaki spray paint gives a great look. In a well ventilated area (outside is good) apply a coat to the outside (textured side) of all the cement walls, and do the same to the silo tubes and top since these are not painted and need to be before assembly

2 - Assemble & Install Windows

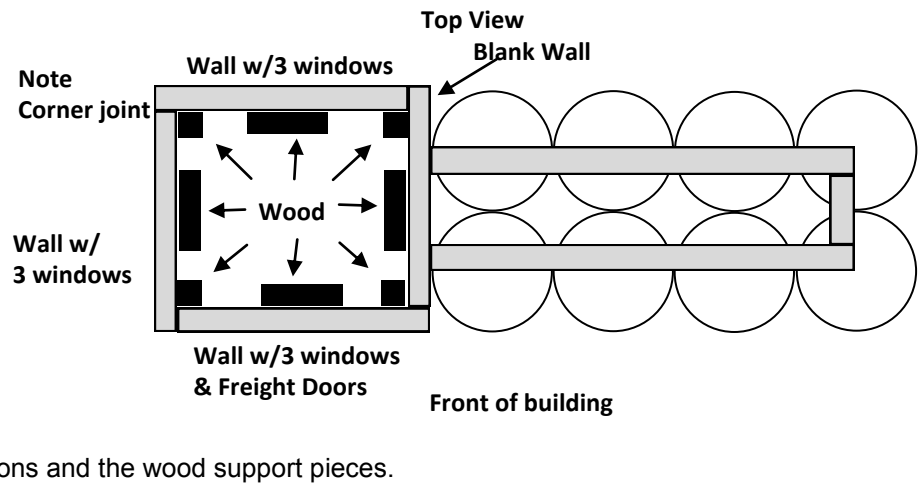
The windows are laser cut from an epoxy impregnated wood material and will have a clear plastic sheet stock applied over the opening from the inside of the model to simulate a finished window.

- Carefully remove the windows from the sheet they are attached to, and remove any hanging pieces from the window frames.
- If the window frames have not been painted, and if you would like to do so, paint them now and let them dry before moving to the next step
- Place the walls to which you want to add windows back (smooth) side up on a flat surface
- The windows are designed to overlay the window opening from the back, or inside of the building, and will not fit inside the window opening if installed from the front
- Apply a small amount of glue around the edge of the frame and apply centered over the openings on the wall sections
- Let the glued windows dry before moving the wall sections to a vertical position to avoid glue running or the windows falling out
- Prepare to cut and glue small pieces of window clear plastic material over the back of each window. Consider the following two window detailing option for the windows:
- If you want the window panes to have a hazed affect, lightly sand the window material until you've achieved desired haze effect prior to cutting into small window pieces
- You may also detail the windows with shades by covering the top portion of the window material with masking tape



3 - Assembly of Main Structure

The assembly of the main structure or “Head House” consists of making a simple “box” when viewed from the top. There are four walls of equal size but with different window configurations as noted in the drawing to the right. Two pieces of 1/4” by 5-3/4” square wood is used to add strength to each corner, one placed near the top of a wall, and one near the bottom. Smaller pieces of 1/4” by 1” square wood are used to provide a lip or cleat for the roof section on the top. To the right is a top-down view drawing of the relationship of the wall sections and the wood support pieces.



Placement of side walls

- Take the wall with 3 windows and the freight door (front) and the blank sidewall and line them up to make a right angle. The use of a small square is helpful. The front wall should overlay the edge of the blank sidewall. Glue the two wall sections together, and add the corner wood support pieces in the inside corner to add strength and to create a solid right angle, one near the top and one near the bottom
- Some sanding may be necessary. Rough up edges only where you need to glue
- Repeat the last step but using the wall with 3 windows (back), and finally repeat using the other 3 window wall to complete the “box” - Note the walls overlap on each corner, so a wall has an overlap, and an exposed seam
- Optionally use clamps as necessary to hold pieces together
- Glue the four 2” long 1/4” square wood pieces horizontally, 1/4” down from the top of each side wall sections as shown on the drawing above. Clamp them together and let the glue dry. The purpose of these pieces is to create a cleat or lip to rest the roof material on in a later step

4 - Assembly of “Penthouse” & Gallery

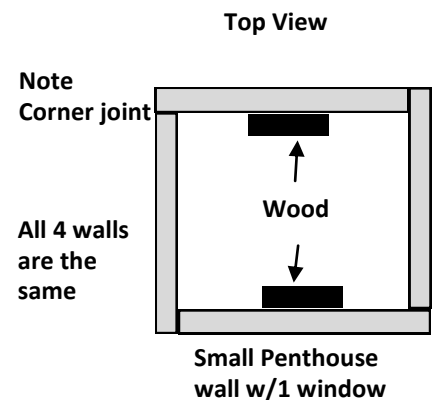
The “penthouse” is a small four sided structure with a flat roof that we will place on top of the head house in a later step. The “gallery” is a long narrow structure that sits on top of the silo roof and has a corrugated roof.

Penthouse

- Take two of the short penthouse walls and line them up to make a right angle. The use of a small square is helpful. The front wall should overlay the edge of the side wall. Glue the two wall sections together
- Some sanding may be necessary. Rough up edges only where you need to glue
- Repeat the last step using an additional penthouse wall, and finally repeat using the last penthouse to complete the “box” - Note the walls overlap on each corner, so a wall has an overlap, and an exposed seam.
- Optionally use clamps as necessary to hold pieces together
- Glue the two 2” long 1/4” square wood pieces horizontally, 1/4” down from the top of the front and rear wall sections as shown on the drawing above. (the top is the portion that has a simple cornice around the top of the wall) Clamp them together and let the glue dry. The purpose of these pieces is to create a cleat or lip to rest the roof material on in the next step.
- Glue the black 3-5/8” x 3-5/8” Roof material to the wood cleats installed in the last step—note this should fit inside the four walls of the penthouse—let dry and set a-side for a later step

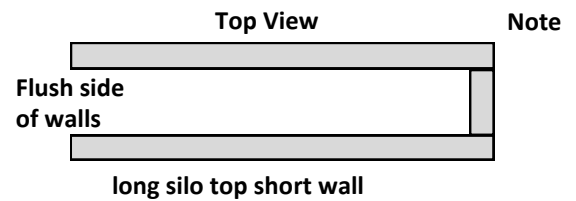
Gallery

- The gallery has two Long Silo top short walls with three windows. They are different such that one has a flush side



on the right and one has a flush side on the left. The flush side will mount against the head house while the other side that has a small cornice outcropping on the top side will mate with the Narrow Silo top short end wall

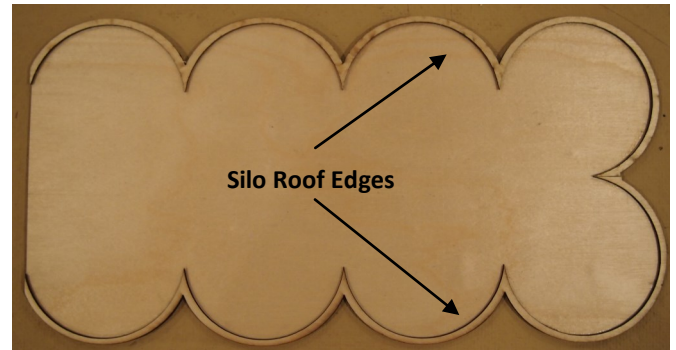
- Take one long silo top short wall with the flush side to the left and the narrow silo top short wall, and line them up to make a right angle as seen in the drawing to the right. The use of a small square is helpful. The front wall should overlay the edge of the side wall. Glue the two wall sections together. Some sanding may be necessary
- Repeat the last step using the remaining long silo top short wall to create a “U” shaped structure as above, optional use clamps as necessary to hold pieces together
- Glue the long narrow roof to the top of the structure we just built—note this should fit on top of the three walls and be flush to the walls on the left side (open side wall)—let dry and set a-side for a later step



5 - Assemble Silo Rooftop and Structure

The silo structure includes eight silo tubes and a three-part roof top “cap”.

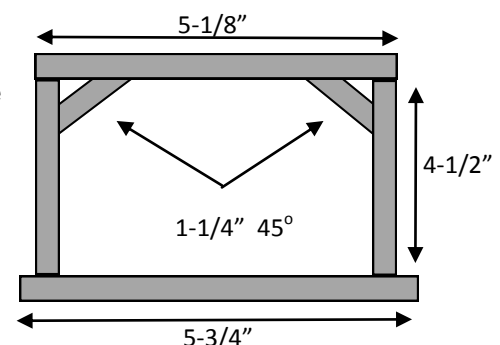
- Carefully using a razor knife remove the two silo roof edges from the card they come attached to
- Dry fit the silo roof edges on top of the silo roof top along the rounded edges as seen in the photo to the right
- Carefully glue the silo roof edges to the top as dry fitted above. Make sure to align the outside edges of both the silo roof top and the silo roof edges to make a flush joint that appears to be one part if looked at from the edge view. Repeat with the second roof edge part to make an assembly as shown in the photo above
- Once the glue is dry, place the roof assembly roof edge side up (as shown in the photo) and dry fit the eight silo tubes in the round areas. It works best to seat the outside of the tube against the inside of the lip edge and tilt the tube to the center of the part. Once you have confirmed the fit of all eight tubes, carefully remove and now glue them in place, using a small amount of glue around the end of the silo tube and insert back in to the silo roof
- You may want to place a small amount of glue between the other end of the silo tubes to hold them together
- Once the glue in the previous step has dried, we can attach the silo assembly to the head house. Referencing the drawing on the previous page, dry fit the silo assembly to the side of the head house with no windows. Once you verify the fit, glue the silos to the head house by running a bead of glue down the side of the silo tubes that touch the head house wall. Let dry—use clamps if needed
- The gallery built in a previous step will be attached to the top of the silo structure with the open end attached flush to the side of the head house. Dry fit in place to verify fit, and note whether any sanding is needed. Apply glue to the bottom and open end of the gallery and attach to the silo top and side of the head house as shown in the photo to the right, let dry

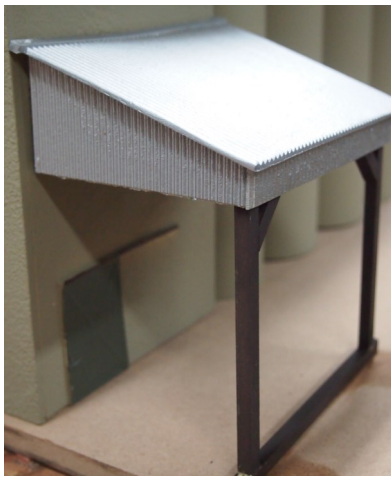


6 - Build and Install Loading Shed Roof and Support

The loading shed roof has two major assemblies, the corrugated roof section, which is made up of four plastic parts that should be painted a “tin” color, and the wood support made up of six parts of 1/4” square wood.

- Glue the wood 1/4”x1/4” pieces together to create an assembly like the one in the drawing to the right. It is easier to build this laying flat on your work surface. Once the glue is dry, paint the wood support a flat brown color.
- The loading shed roof assembly has a corrugated side that faces up and out, and attaches to the building on a cleat above the freight doors. This roof





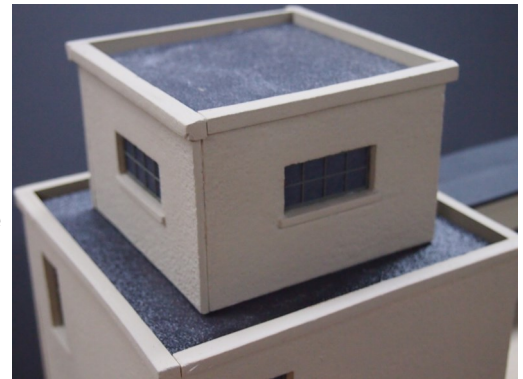
section is supported by the wood frame located at the front of the loading shed and was constructed in the previous step

- The corrugated roof has four parts, a larger top roof, two angled sides, and a front. The parts should be assembled together before you attach them to the building. The best way is to build this assembly upside down on the bench with the corrugated side of the larger roof face down, and glue the other three sides together to make an assembly that looks like the roof in the picture to the left
- Once dry, glue the loading dock roof to both the wall cleat above the freight doors and to the wood support you just built in the previous step

7 - Install Roof & Penthouse

The #315 Grain Silo head house has a square flat roof made from a black material. The intent is to glue this piece to the wood structure, which is about 1/4" below the top of the four walls of the building.

- The black roof material measuring 5 7/8" x 5 7/8" is designed to fit inside the four walls and rest on the four wood roof support pieces. You can glue it in this place.
- Attach the penthouse that was made in a previous step to the center of the top of the flat head house roof as shown in the photo to the right. Glue in to place



8 - Final Detailing – Weathering

Your Korber #315 Grain Silo is now assembled and ready for placement on the layout. You may wish to provide some additional weathering before you install it, as a building next to the tracks would be a heavily used structure with a layer of soot, and would rarely look brand new.

To add a weathered look, spray the entire model with flat black from a distance. This will give a sooty look to the building. Once done you can spray the completed structure with Dullcote to remove any gloss or shine.

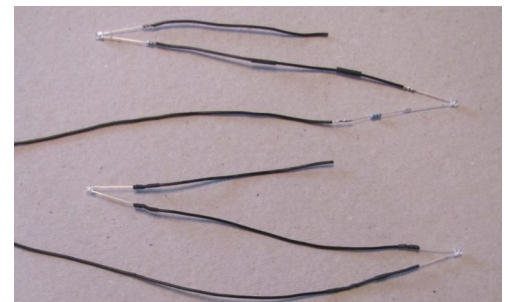
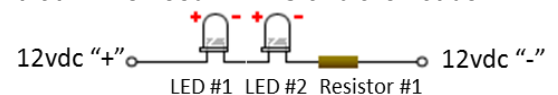
If you choose not to detail the inside of your structure, or light it, an effective and quick way to make a good looking building is to cover the windows with black construction paper from the inside. This creates a dark building look that is more desirable than the view in to an otherwise empty shell of a building.

Option – Lighting

Interior lights add more realism to this great structure. Following the few simple steps outlined here you will be able to add this improvement to your model. Although we outline using individual LED's for the lights, many use incandescent bulbs, or the LED's that come on a role pre-wired work well too. Remember that LED's need 12VDC and are not designed to work directly from track power or another AC source.

The 3mm flat-top white LED's work well as they spread light over a 120-150 degree angle as opposed to the 30 degrees or so that the dome-top LED's give providing an even light inside the building.

This simple diagram shows the basic electrical circuit. The value of Resistor #1 (R1) depends on the LED's used. You can find a good on line calculator and more information on LED's at <http://led.linear1.org/led.wiz/>.



The photo shows how a harness for 2 LED's was made. On top are the LED's and a current-limiting resistor (value depends on what LED's you're using) soldered to black wires. On the bottom, shrink tubing has been added to hide the resistor and the solder joints prior to assembly. You need to be careful to keep the polarity correct on the LED's (don't get the "+" and "-" wires mixed up). Make up and test each harness prior to installation. Once the harnesses are assembled (you may need several for the size of the building), glue them in place on the inside roof and wall of the structure.