



HO Structure Kit **VALLEY CEMENT** 933-3098

Thanks for purchasing this Cornerstone Series® kit. Please read these instructions and study the drawings before starting construction. All parts are made of styrene plastic, so use paints and glues which are compatible. PLEASE NOTE; the Rotary Kiln in this kit can be converted to a working model with the Cornerstone Series® Universal Gearbox and Motorizing Kit, #933-1050, sold separately.

There's a good chance that the materials used to construct the building where your layout is housed were shipped by rail. That's especially true if you're working in a basement or other structure with concrete floors and walls. Powdered cement is one of the basic materials needed to make concrete, and is frequently shipped by train.

Cement dates from the time of the pharaohs when the stone blocks of pyramids were held together with a crude mortar. The Romans improved the material using limestone, which was crushed and burned, then mixed with water.

Modern cement consists of alumina, silica, lime (derived from limestone), iron oxide and gypsum. Clay, sand and slag, a lava-like material that's a byproduct of the steel industry, are among other materials that can also be used.

Some items are shipped in powdered form by road or rail, while others may be crushed on-site.

These materials are then held in a bulk storage area until needed. In

the first step of the cement making process, measured amounts of raw materials are mixed and blended. At this point, they can be mixed with water to form a slurry for ease of handling with less dust (known as the "wet process") or used as-is in a "dry process."

The blended materials are fed into a rotary kiln; a specialized furnace that looks like a giant steel tube set on a downward angle. In the first step, the raw materials are preheated to 1600° F (900°C), then fed into the high end of the kiln. Once inside, moisture is burned off and a series of chemical reactions begin, as the kiln turns to keep the materials mixed and moving. At the lower end, fuel (oil, gas, coal, or coke can be used) is injected and burned to generate temperatures approaching 2600°F (1450°C). This causes the raw materials to fuse and form hard marble-sized pieces of "clinker." After cooling, the clinkers are moved into a crusher and ground into a fine powder. A small amount of gypsum is then added to improve the handling qualities of the material when it's used to make concrete.

At this point, the powdered cement is ready for shipping. Traditionally, cement was shipped in barrels or bags loaded aboard box cars. While you can still buy cement in bags today, most powdered cement is moved in bulk aboard covered hoppers over long distances, or trucked to local customers.

ON YOUR LAYOUT
Valley Cement will be an important

customer for your railroad. Bulk shipments of raw materials can be moved in various hoppers or gondolas. Walther's Trinity Cement Service Two-Bay Hoppers (932-5370 series) are based on prototypes built especially to serve the cement industry and are perfect for moving the finished product. The plant will also require frequent switching by a yard or wayfreight crew to pick up empties and move loaded cars, although many operations have a switcher of their own to handle the work.

Powering the rotary kiln will add realistic animation to your new industrial scene. This can be done quickly and easily with the Universal Gearbox and Motorizing Kit (933-1050), sold separately.

Since limestone is required in huge quantities, cement plants are often built next to quarries. On your layout, the Glacier Gravel Company (933-3062) kit can simulate a typical crusher operation.

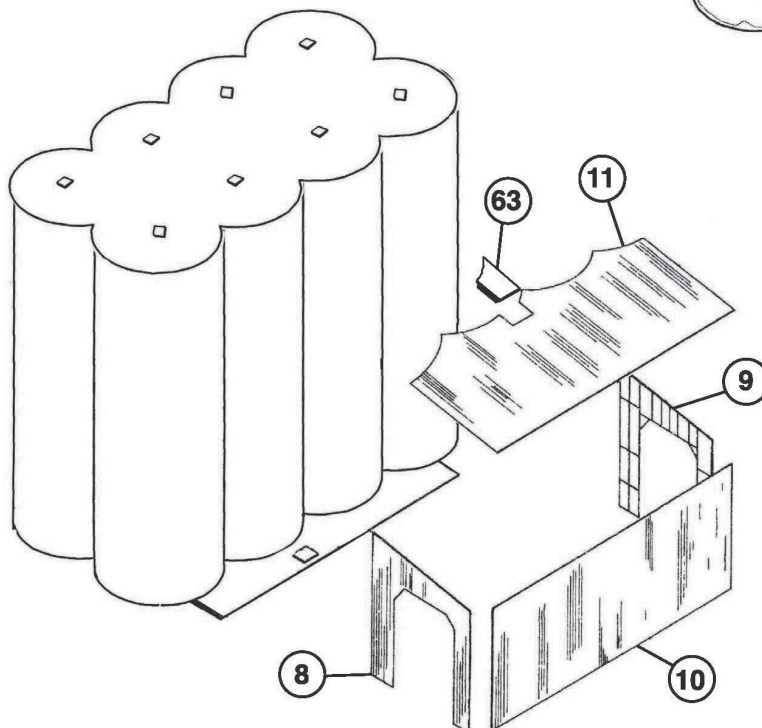
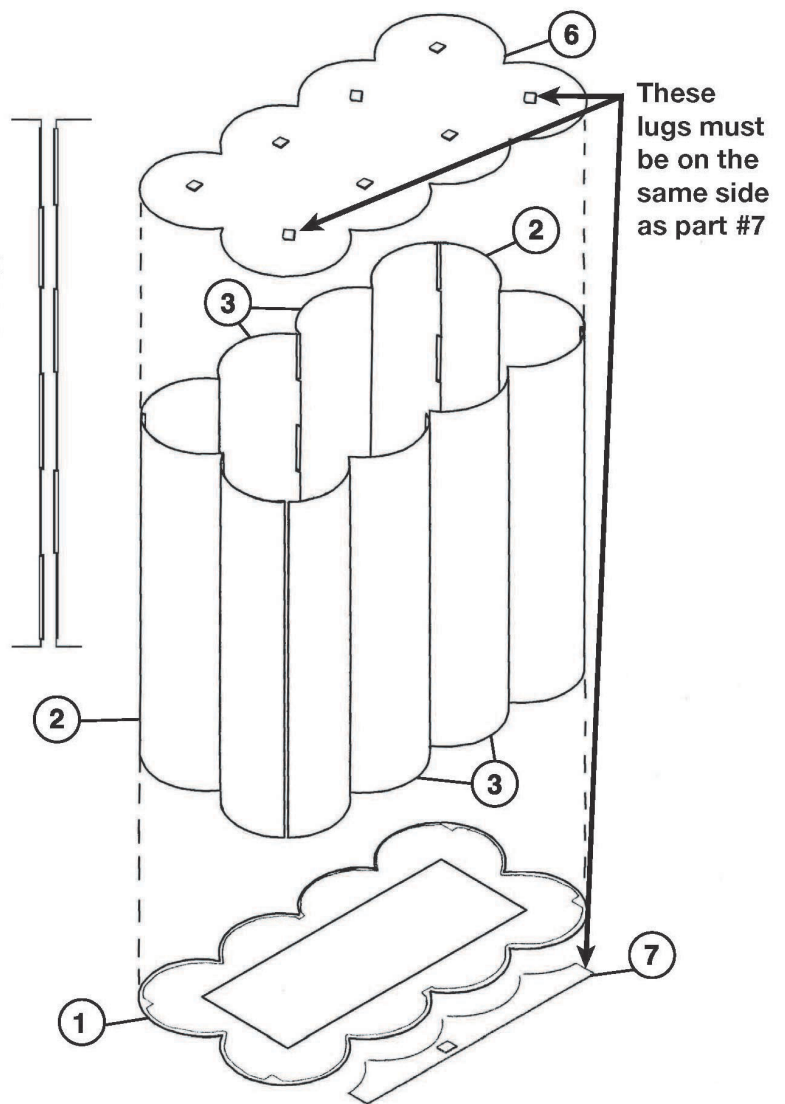
To generate on-line traffic and simulate loads-in/empties-out operations, add the Medusa Cement Company (933-3019) or the Blue Star Ready Mix (933-3086) concrete batch plant to an industrial area.

For more ideas to detail your scene, ask your dealer, visit our Web-site waltherscornerstone.com or see the latest Walther's HO Scale Model Railroad Reference Book.

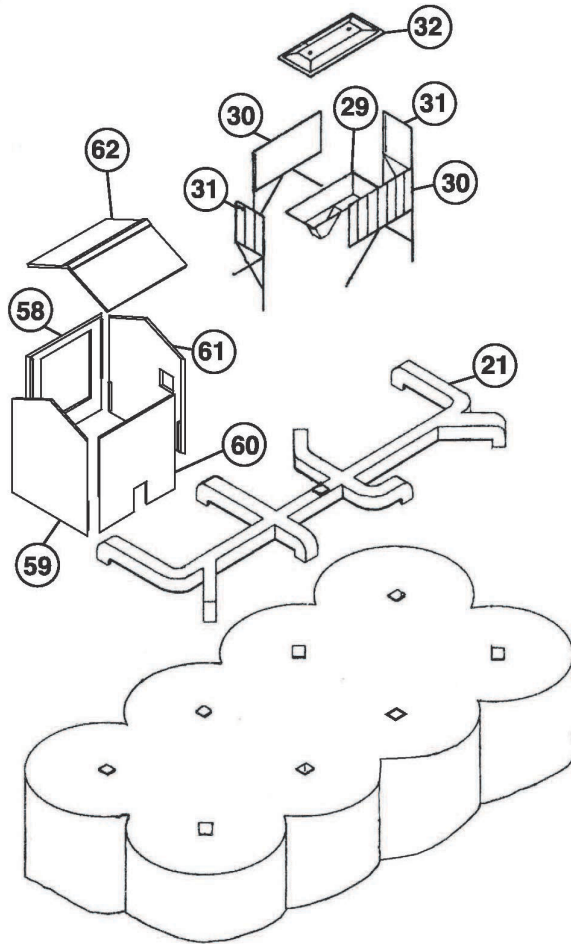
SILO COMPLEX

1. Glue the silo sides (3) and ends (2) together and to the base (1)
Note: There are a series of alternating tabs and recesses along the silo sides (3) and ends (2).
2. Glue the shed base (7) to the side of the main base as shown.
3. When gluing on the roof (6), make sure that the two angled lugs on the corners are on the same side as the shed base.

Sides showing tabs and recesses



4. Glue the shed walls (8, 9, 10) together and to the shed base.
5. Glue roof insert (63) in place and then glue the shed roof (11) in place.



6. Glue the distributing pipe (21) to the lugs on the roof.

7. Glue headhouse together (58, 59, 60, 61, 62). Set aside for later.

8. Glue the large collector walls (30, 31) to the collector base (29). Then glue the roof (32) in place. Glue this assembly in place over pipe #21 as shown. Note: the base (29) should align with the tab on #21.

9. Glue the corner pipes (34) to both ends of pipe #33. Also, glue pipe #35 to the end of the middle extension of #33. Note: Make sure all of these pipes are vertical and perpendicular to the roof. Set this aside for use in step 11.

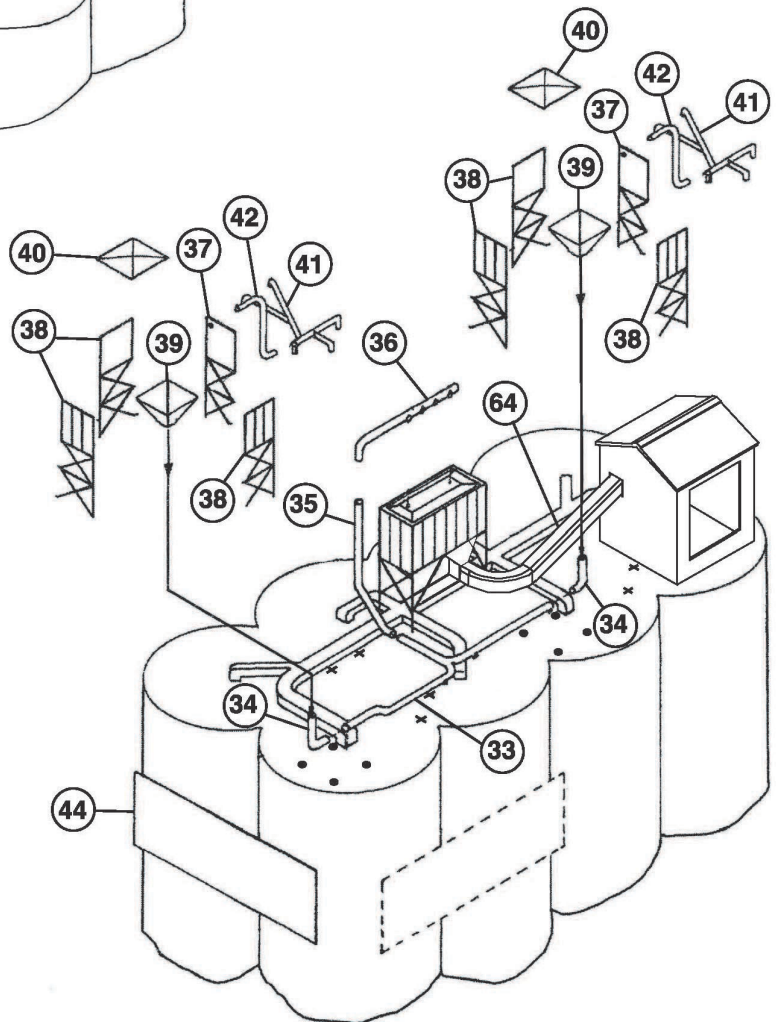
10. Glue the small collector walls (37, 38) to the collector base (39). Then glue on the roof (40). Place the pipe assembly from step 10 under where the collectors will go, with the top of parts #34 to be glued into the collector bases (39). Then glue the collectors to the pipes and into the holes (the round dots in the illustration).

11. Glue pipe #36 into the holes on top of the large collector and also to the top of pipe #35.

12. Glue pipe #42 to pipe #41. Then glue the end of #42 into the hole in the small collector wall and #41 into the holes in the roof (the X's in the illustration).

13. Glue the assembled headhouse in position over distributing pipe #21, with the duct (64) glued into the small hole on the side of the wall as well as glued between the large collector base and the distributing pipe.

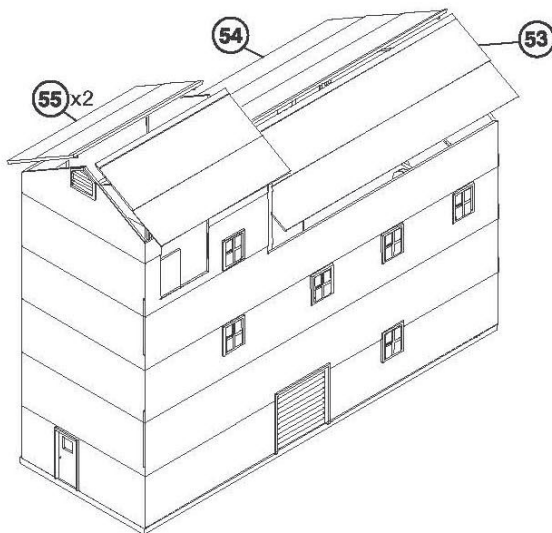
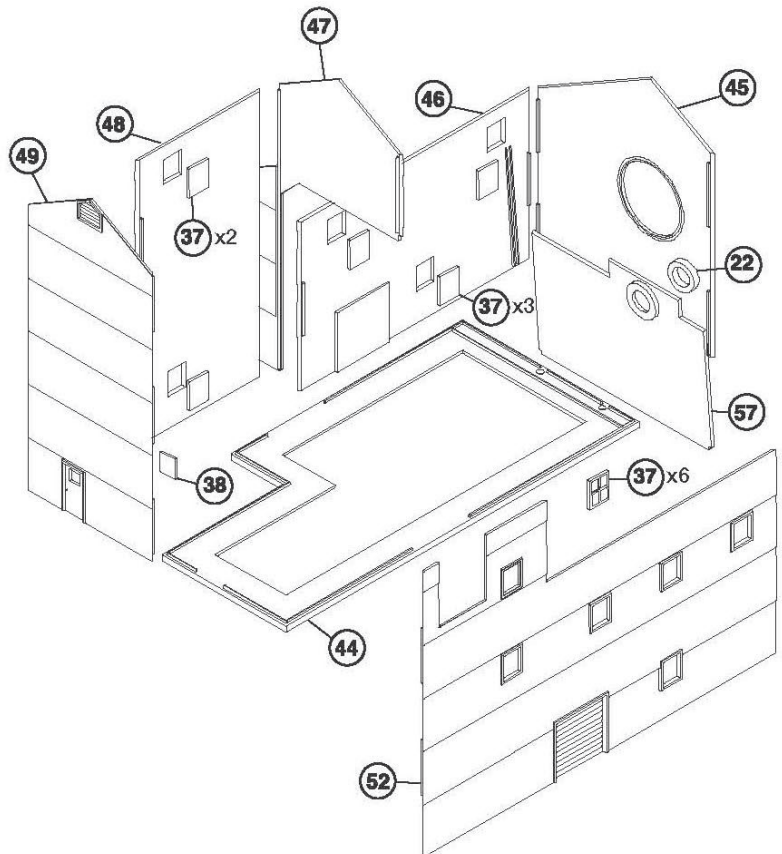
14. Glue the sign board (44) on the side or end as desired.



BUILDING #1

1. Glue windows (37) into openings in the backs of the walls (46, 48, 52). Glue door window (38) into space on the back of wall #49.

2. Glue walls #45 and 52 together and to the base (44). Place bearing #22 in place in #57 and glue this wall to wall #52 and the base. Glue wall #46 to walls #45 and #57 and base. Note: Make sure #57 is within the ridges on #46. Glue wall #47 in place between walls #46 and #52. Glue the remaining walls (48, 49) in place.



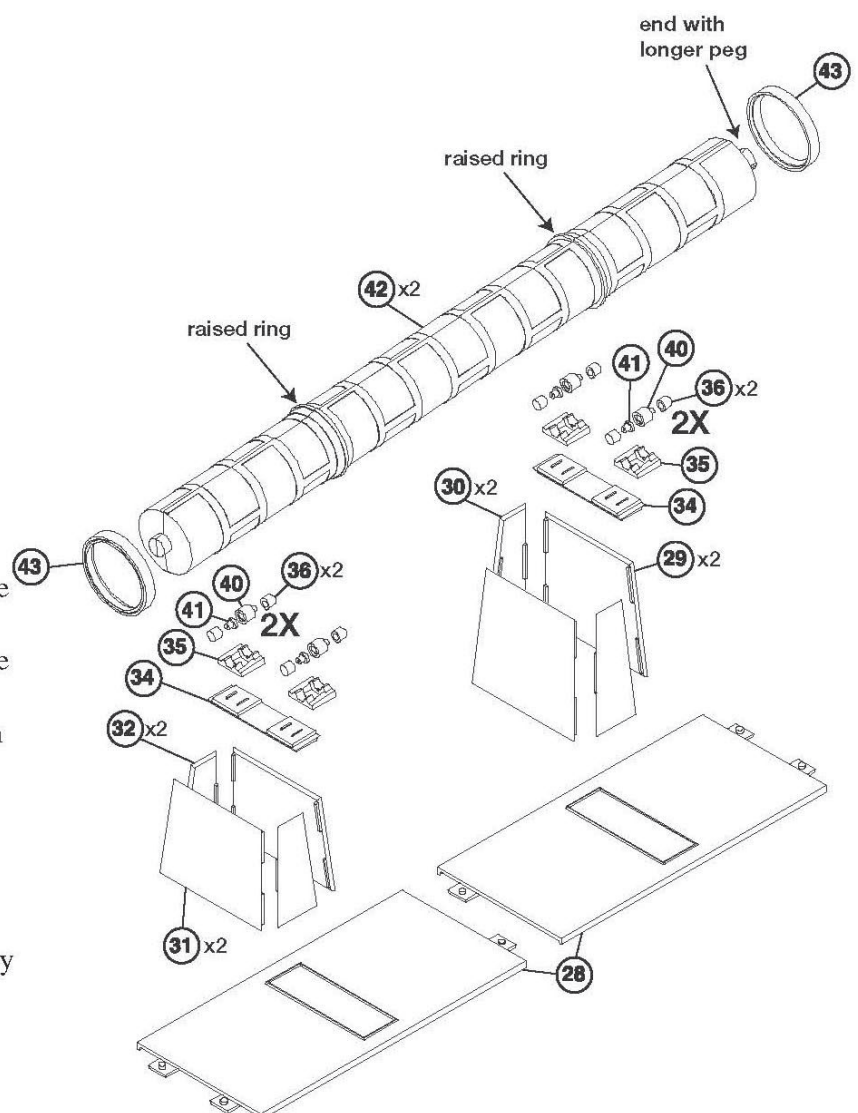
3. Glue the roofs (53, 54, 55) on.

ROLLER ASSEMBLY

1. Glue the bases (28) together.

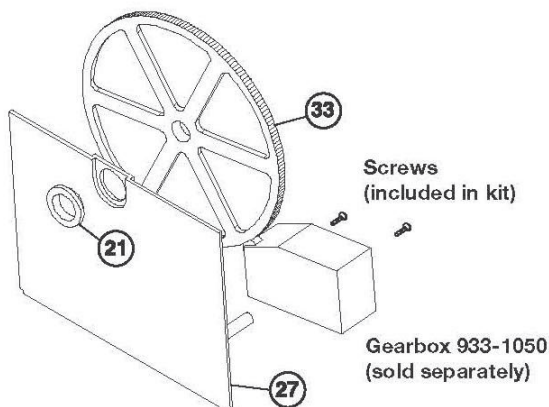
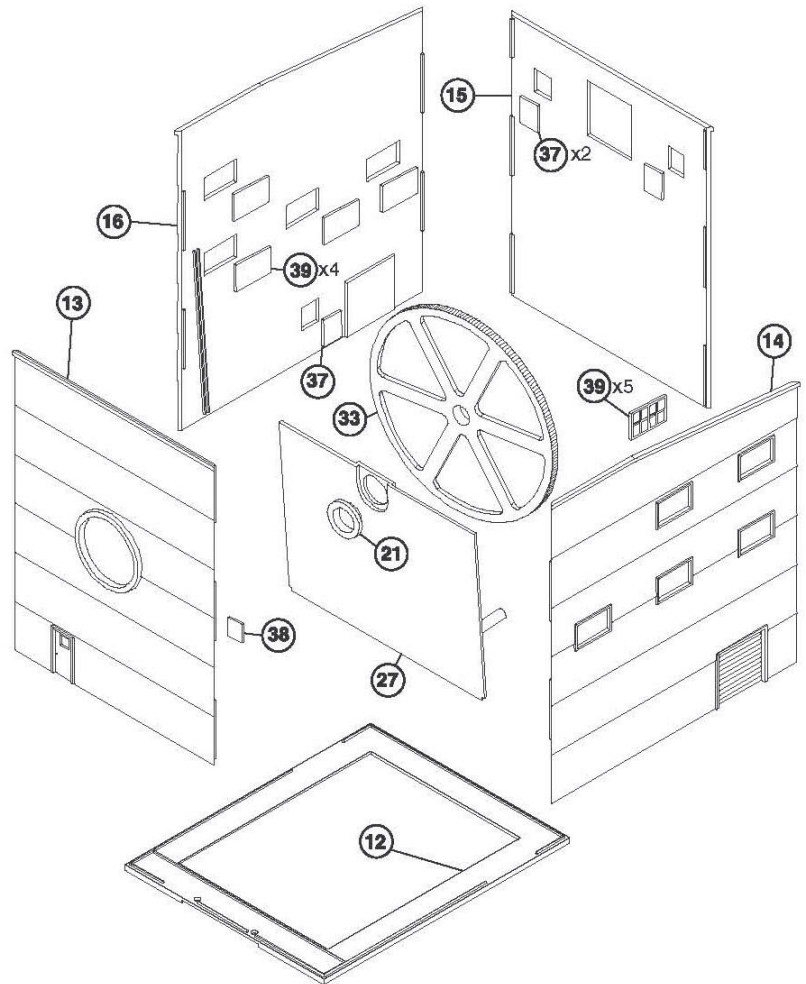
2. Glue the tall roller support (29, 30, 34) and the short roller support (31, 32, 34) together and then to the base (28). Glue the roller plates (35) on top. Note: They angle upwards toward the taller support. Glue the roller caps (41) into the ends of the rollers (40). Place the roller bearings (36) on each end. Glue these bearings to the plates (35) using the pegs on #36 to position in the plates.

3. Glue the kiln halves (42) together. Then glue the bearing rings (43) onto the kiln. Note: Slip these on from the ends until they meet the raised rings on the kiln.



BUILDING #2

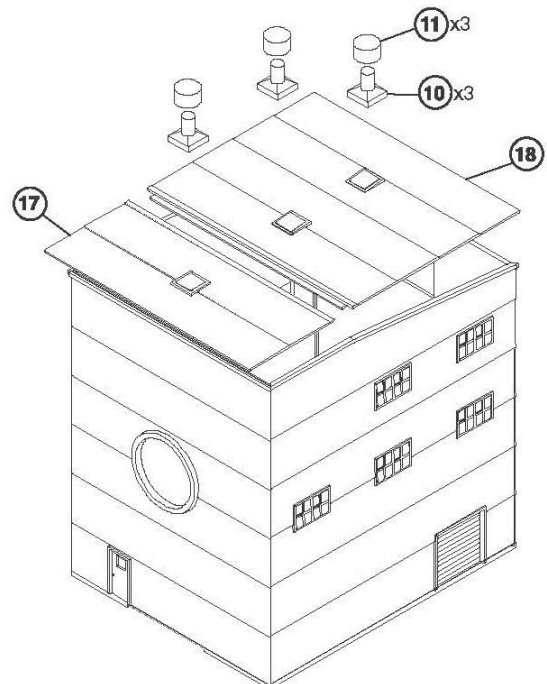
1. Glue windows (37, 39) into the openings in the backs of the walls (14, 15, 16). Glue the door window (38) into the space on the back of wall #13.
2. Glue the walls (13, 14, 15, 16) together and to the base (12).
3. Snap bearing #21 into the inner wall (27).
4. Slide wall #27 down between the ridges on the inside of the walls (14, 16).



OPTIONAL

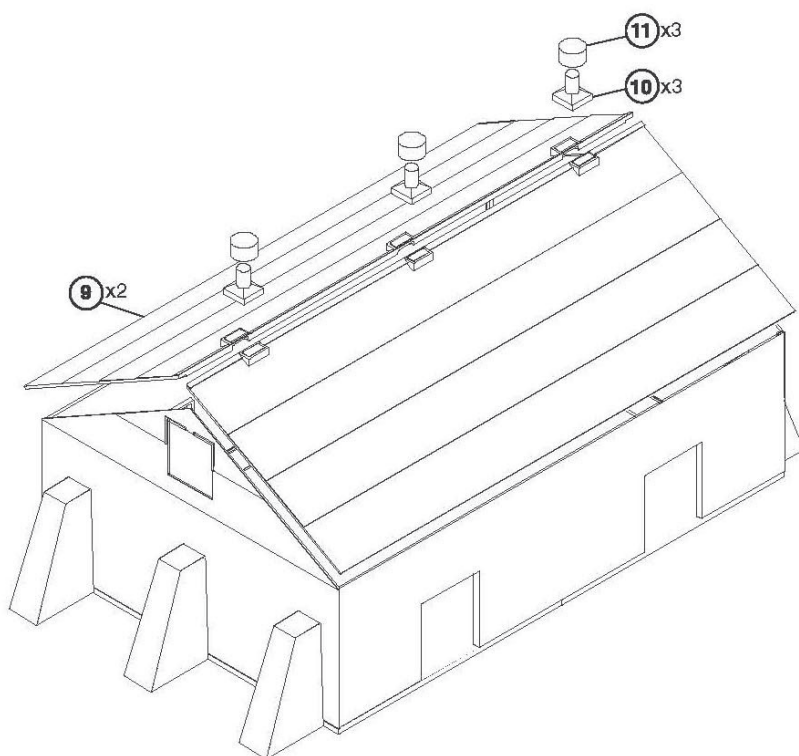
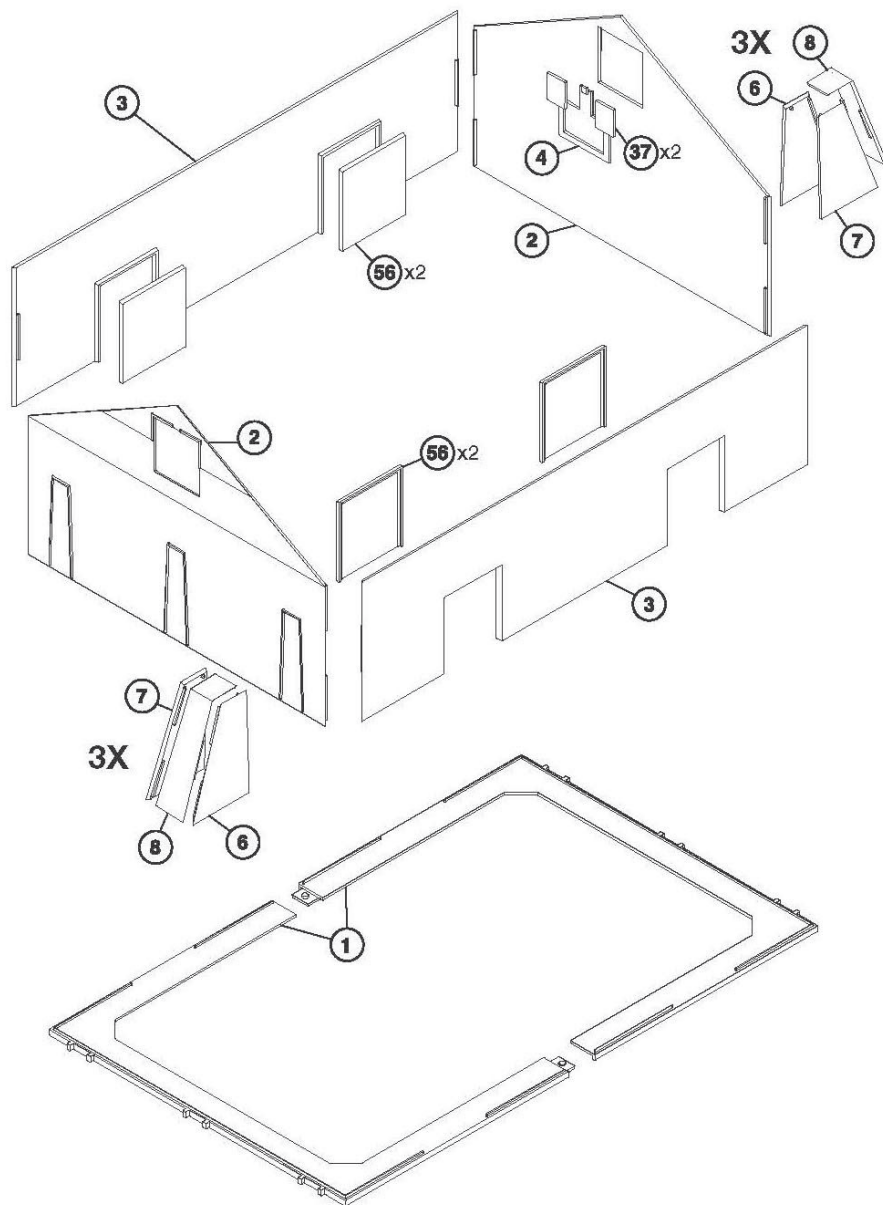
If you wish to motorize the roller, you must purchase separately 933-1050, which is the motorized gearbox. Using the screws from the kit, attach the gearbox to the lugs on the back of wall #27 before installing the wall. Follow the wiring instructions found in the gearbox kit. Put the end with the longer peg of the roller through the bearing (21) and press fit the large gear (33) on. This will then align with the gear on the gearbox.

5. Glue roof (17, 18) together and set it on top of the building. Do Not Glue! (this will allow you to adjust gearbox or add it at a later time).
6. Glue the vents (10, 11) together and then onto the pads on top of the roof (17/18).



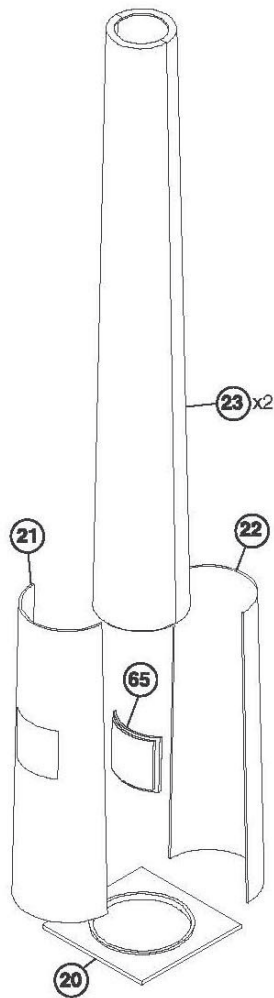
BUILDING #3

1. Glue the base (1) together.
2. Glue plug (4) into opening in the back of one end wall (2).
3. Glue windows (37) and doors (56) into the openings in the backs of the walls (2, 3).
4. Glue the walls (2, 3) together and to the base (1).
5. Glue the bunker walls (6, 7, 8) together and then in place on the ends walls (2).



6. Glue roofs (9) together and on the building.

7. Glue the vents (10, 11) together and then onto the pads on the roof.

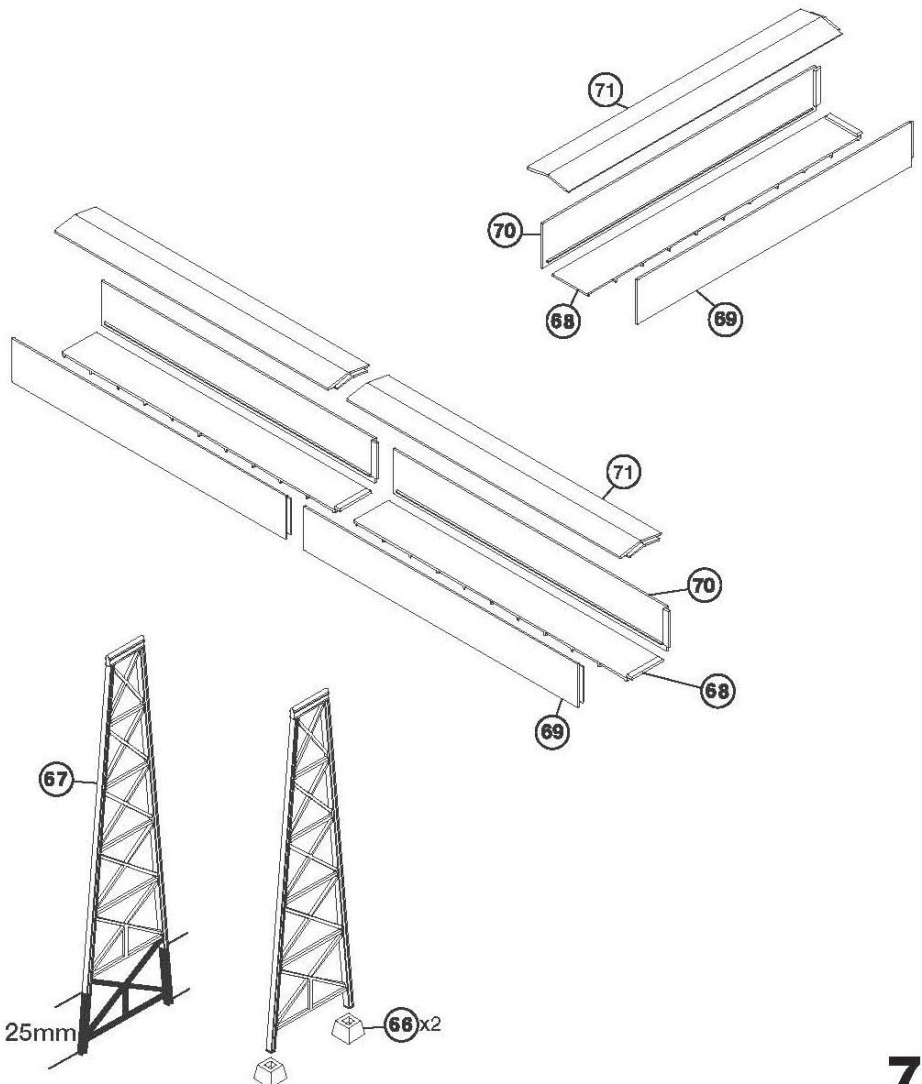


CHIMNEY

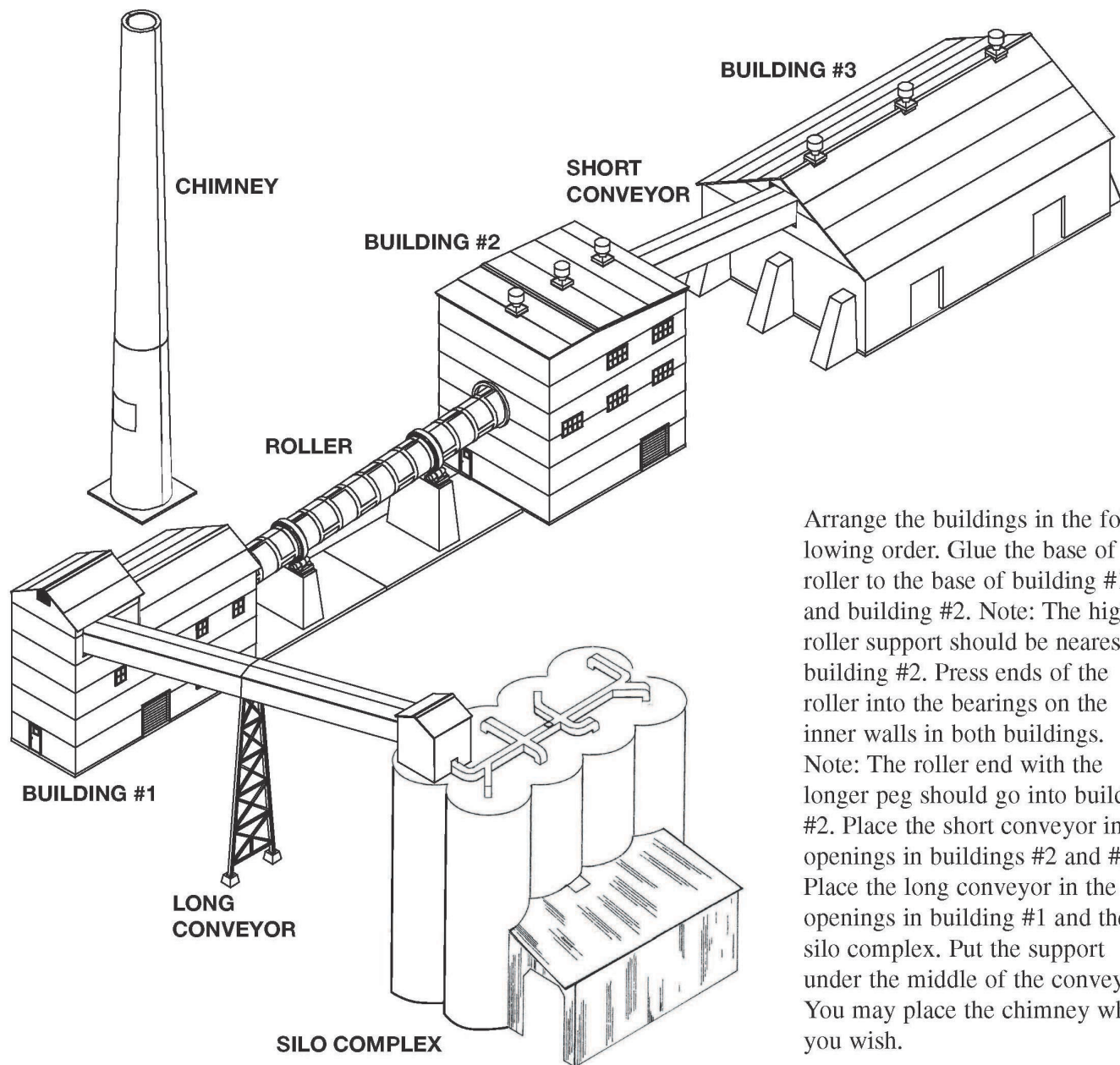
1. Glue the filler piece (65) into the opening in the back of the lower chimney half (21).
2. Glue the bottom halves (21, 22) together and to the base (20).
3. Glue the top halves (23) together and then on top of the bottom section.

CONVEYORS

1. Glue the sides (69, 70) to the floor (68). Then glue on the roof (71).
2. Glue two of these assemblies together, end to end. Note: This double section will span between the silo bin complex and building #1. The single section goes between building #2 and building #3.
3. To make a support that will fit the double-sectioned conveyor, first cut off 25mm of the side beams from the bottom of part #67. Then cut off the bottom most interior bracing (what needs to be removed is solid black in the illustration).
4. Glue the support pads (66) onto the bottom of #67.



FINAL ASSEMBLY



Arrange the buildings in the following order. Glue the base of the roller to the base of building #1 and building #2. Note: The higher roller support should be nearest building #2. Press ends of the roller into the bearings on the inner walls in both buildings. Note: The roller end with the longer peg should go into building #2. Place the short conveyor into openings in buildings #2 and #3. Place the long conveyor in the openings in building #1 and the silo complex. Put the support under the middle of the conveyor. You may place the chimney where you wish.

DECALING

1. After cutting out the decal, dip in water for 10 seconds, remove and let stand for 1 minute. Slide decal onto surface, position and then blot off any excess water.
2. Lightly brush Micro Sol® on top. This will soften the decal, allowing it to conform to irregular surfaces. **DO NOT TOUCH DECAL** while wet!
3. When decal is thoroughly dry, check for any trapped air bubbles. Prick them with the point of a small pin or hobby knife blade and apply more Micro Sol®.