HO Structure Kit

WOOD COALING TOWER

933-2922

Thanks for purchasing this Cornerstone Series® kit. Please take a few minutes to read these instructions and study the drawings before starting. All parts are styrene plastic, so use compatible glue and paint to finish your model.

In the early days of American railroading, wood was the cheapest and most readily available fuel for locomotives. Local farmers clearing land sold surplus wood to the railroad, storing it in piles or on special platforms called “wood ricks” at trackside. Train crews, with occasional help from passengers, stacked cordwood in and on the tender.

Coal was available in some areas but was difficult to transport. This changed once railroads reached the coal deposits, making long-distance shipments practical and profitable. But with the switch to coal as locomotive fuel, new methods had to be developed to supply the large quantities required.

Loading coal by hand was hard, dirty and slow work. At small terminals, where time was not as critical, it could be shoveled directly from cars to waiting tenders. But on the road where trains had to stay on schedule, more efficient methods were needed. On routes with less traffic, a bucket loader could be used. These facilities had a large hand-operated (some were later converted to pneumatic operation using air from the engine) crane to lift large iron buckets of coal to waiting tenders.

Where traffic was heavy or at major terminals where several engines had to be coaled in a short time, some roads built huge coal docks. A typical design consisted of a ramp some 400 to 600 yards (365.7 – 548.6m) long leading to a storage bin with multiple chutes at trackside.

Hoppers or gondolas of coal were shoved up the ramp, and unloaded in the storage pockets. Gravity made quick work of refueling waiting engines. Although mechanically simple, the amount of land required made them impractical in many areas and there was always the possibility for accidents if cars were shoved too hard, or allowed to roll back down the ramp too quickly.

This opened the door to a wide range of mechanical loading equipment in the late 1800s. While some were widely used, the need for greater efficiency and lower costs led to the development of coaling towers. While some railroads had their own designs, most were built by outside contractors to a standard plan. The size and type of coaling tower used at a particular location depended on topography, needs of the railroad, supply and type of coal and number of locos serviced in a typical 24-hour period.

Towers were constructed of huge timbers, which were much cheaper than comparable iron or steel parts, to support the great weight of the storage bins. And the filling operation was now mechanized, creating what was sometimes known as a “coaling elevator.” Requiring much less land, and far faster and more efficient, towers allowed coal delivery and refueling to go on simultaneously minimizing downtime, especially at busy points where towers needed refilling several times a day. Coal was delivered on one track and dumped into a pit. An overhang or shed over the unloading area kept the coal dry while unloading and the pit itself was usually constructed of concrete or steel to be waterproof. Coal was moved into the tower by mechanical hoists or buckets. Crews pulled up to the coal chutes, and gravity made quick work of refilling tenders; towers often spanned more than one track allowing several locos to fill up at the same time. Sand and water facilities were nearby; sand towers were often attached to coaling towers so the engine could take on both at the same time and be on its way quickly.

The arrival of newer and much bigger engines, as well as the increasing cost and scarcity of suitable wood, forced railroads to consider new materials for coaling tower construction by the 1920s. While new concrete and steel towers appeared, many wooden towers remained in use until the last steam locos were retired. Many were then abandoned and since they were easily dismantled, most were destroyed. A few remain in service along tourist and museum lines today.

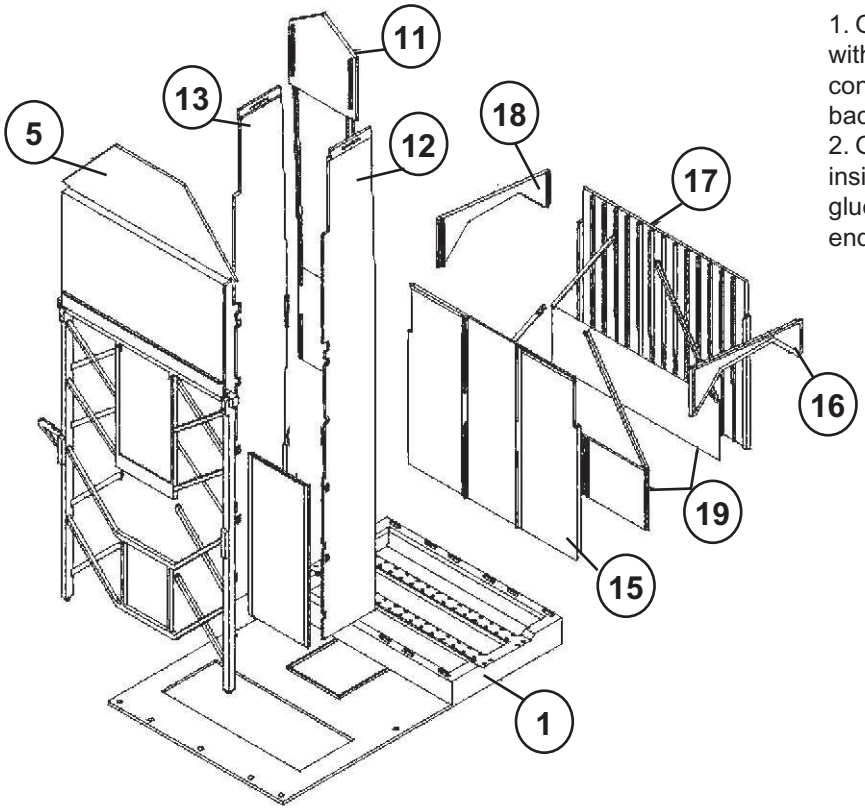
ON YOUR LAYOUT

Coaling towers are an essential part of any steam-era layout. As a rule of thumb, coal was available about every 50 miles, roughly halfway between major terminals where engines were changed and serviced.

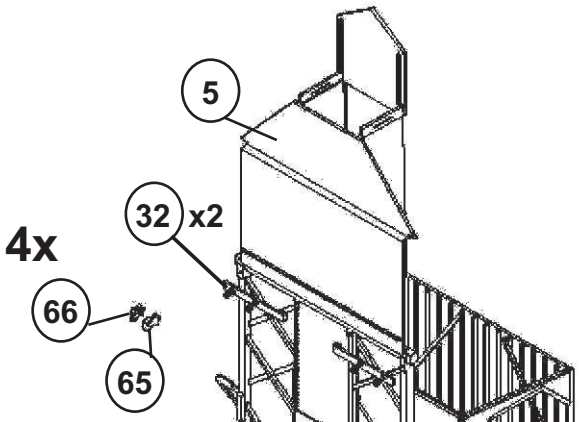
This model is based on a Soo Line prototype built along the mainline at Lake Villa, Illinois. Towers of this type could also be found at small or medium terminals.

You can create a complete steam era servicing facility with Walthers Cornerstone Series® Three-Stall Roundhouse (#933-3041), Built-Ups 90' Turntable (#933-2840) and Wood Water Tank (#933-2813, 933 2819 or 933-2820), each sold separately. Additional details such as the Oil Drum and Figure Set (#933-3100) and Wall-Mounted Lamp (#933-1094) will add authenticity to your terminal.

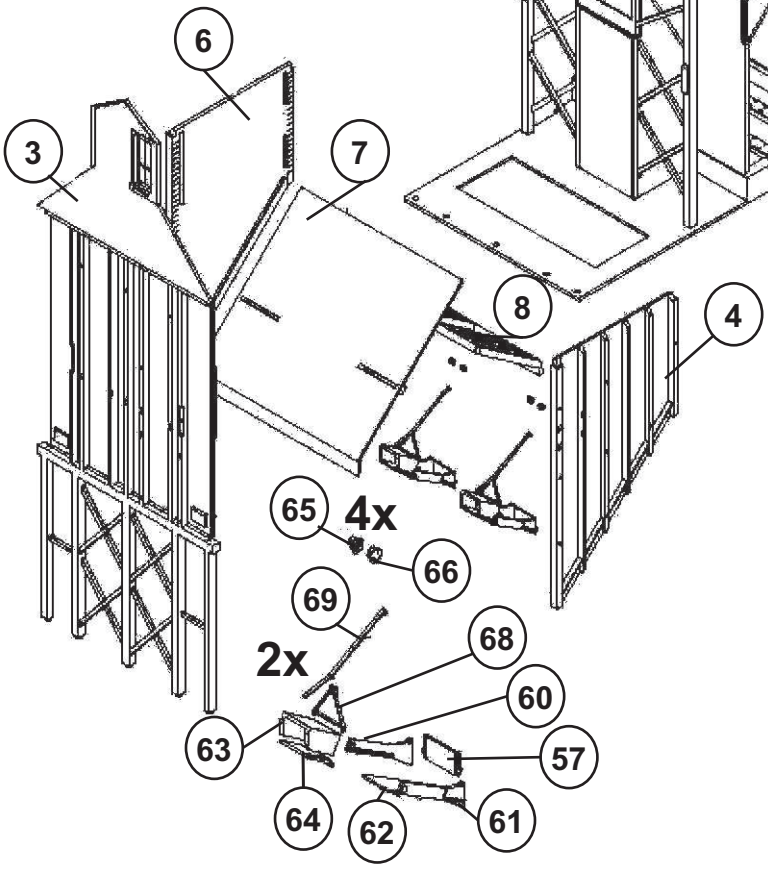
For more figures, vehicles, locos, freight cars and accessories to set the scene, see your dealer, check out the latest Walthers HO Scale Model Railroad Reference Book or visit our Web site at walthersscornerstone.com for more ideas.

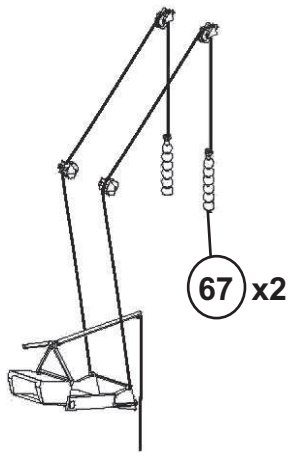


1. Glue the conveyor sides (12, 13) to the back wall (5), with the “floating” braces in the holes. Next glue the conveyor front (14) in place. Then glue on the conveyor back (11). Glue this subassembly to the base (1).
2. Glue the dump shed inner boards (19) in place on the inside of the shed front (15) and back (17) walls. Then glue these walls in place on the base (1). Next glue on the end walls (16, 18).



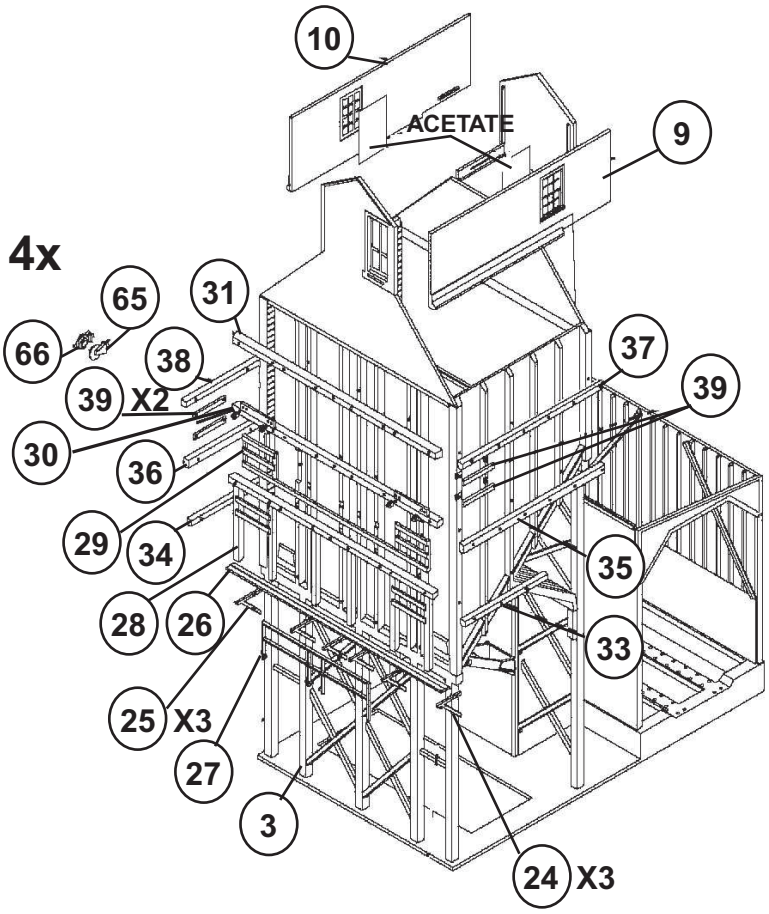
3. Glue the pulley back boards (32) in place on the inside of the back wall (5). Glue four sets of pulleys (65, 66) together and to the back boards.
4. Glue the right (4) and left (6) sides to the front wall (3). Then glue the bin floor (7) into position. Glue four sets of pulleys (65, 66) together and then into the holes in the bin floor.
5. Glue the inner chutes (57, 60, 61, 62, 63, 64) together. Note: Do not get glue on the pins of #64 or in the holes in #s 60 and 61. This will allow you to raise or lower the chutes at will. Now glue the chutes to the floor (7). Glue the lever fulcrum (68) to the front of #63. Glue the gate lever (69) to the fulcrum and the bottom of the floor.
6. Glue the bin floor braces (8) into the notches in the bottom of the floor (7). Note: If you wish to rig the chutes, begin doing it now. Follow the rigging instructions and attach the counterweights (67). Glue this sub-assembly into the holes in the base (1) and sides of #5.





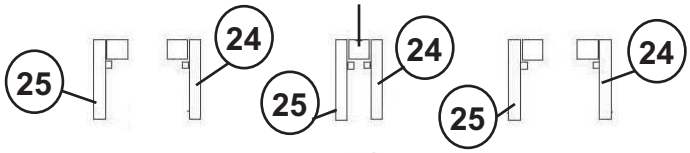
Inside Chute Rigging

1. Cut the thread into two equal lengths of 10 cm each.
2. Glue one end of one of the threads into the hole in the chute side, run it through the lower pulley and up and around the upper pulley and through the hole at the top of the weight (67). Repeat for other side.
3. Cut a length of thread 2.5 cm.
4. Glue one end of the thread into the hole in the gate lever (69) and let the other end drop down.
5. Repeat procedure for other chute.

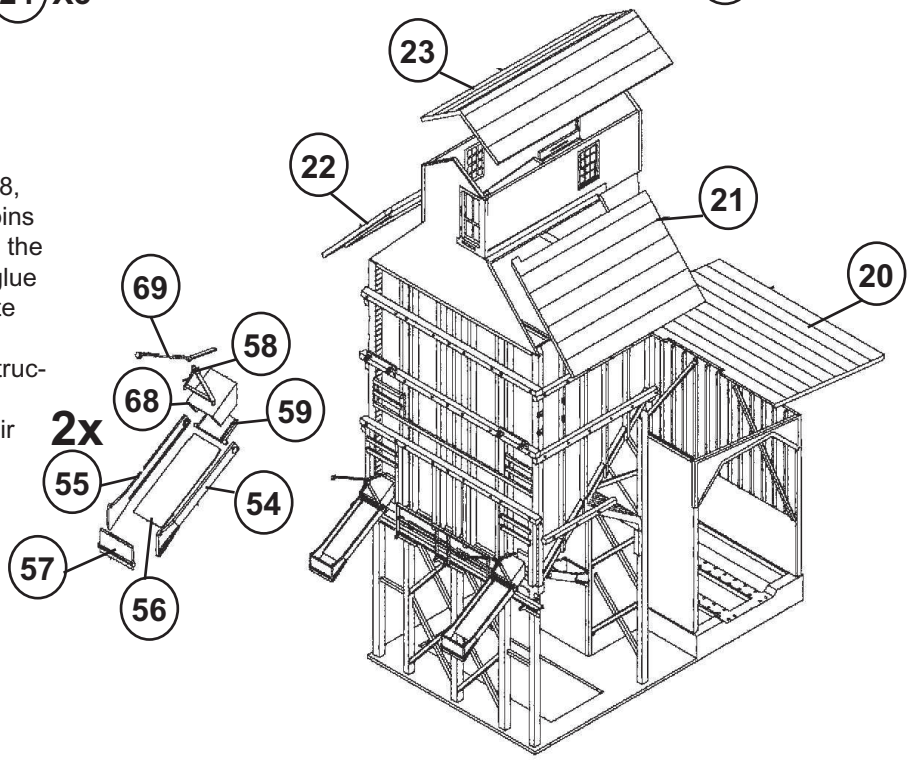


7. Cut the acetate in half and glue (use white glue) “glass” over the windows on the backs of the head house walls (9, 10). Then glue these walls in place as shown.
8. Glue the front horizontal beams (28, 29, 30, 31) onto the front wall (3). Glue the right side horizontal beams (33, 35, 37) and left side beams (34, 36, 38) in place on the sides. Glue the side rungs (39) in place on both sides.
9. Glue the right (24) and left (25) platform brackets on the front of #3 as illustrated. Note: Start at the middle vertical beams and glue resting on the tops of the diagonal beams. Then line up the end two brackets and glue in place. Glue the platform (26) on top of the brackets, 1mm back from the fronts of the brackets. Now glue the handrail (27) on the top of the brackets, in front of the platform.
10. Glue four sets of pulleys (65, 66) together and then into the holes in #30.
Top View of Platform Bracket Layout vertical posts on #3

TOP VIEW OF PLATFORM BRACKET LAYOUT VERTICAL POSTS ON #3

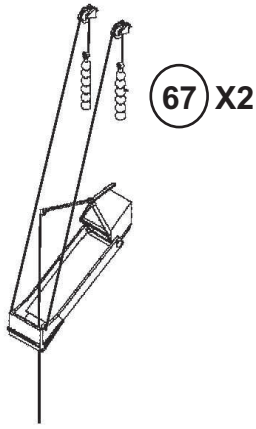


11. Glue the outer chutes (54, 55, 56, 57, 58, 59) together. Note: Do not get glue on the pins of #59 or in the holes in #s 54 and 55. Glue the lever fulcrum (68) to the front of #58. Now glue the chutes to the front wall (3). Glue the gate lever (69) to the fulcrum and the side of the wall. If rigging chutes, follow the rigging instructions and attach counterweights (67).
12. Glue the roofs (20, 21, 22, 23) on in their respective places.

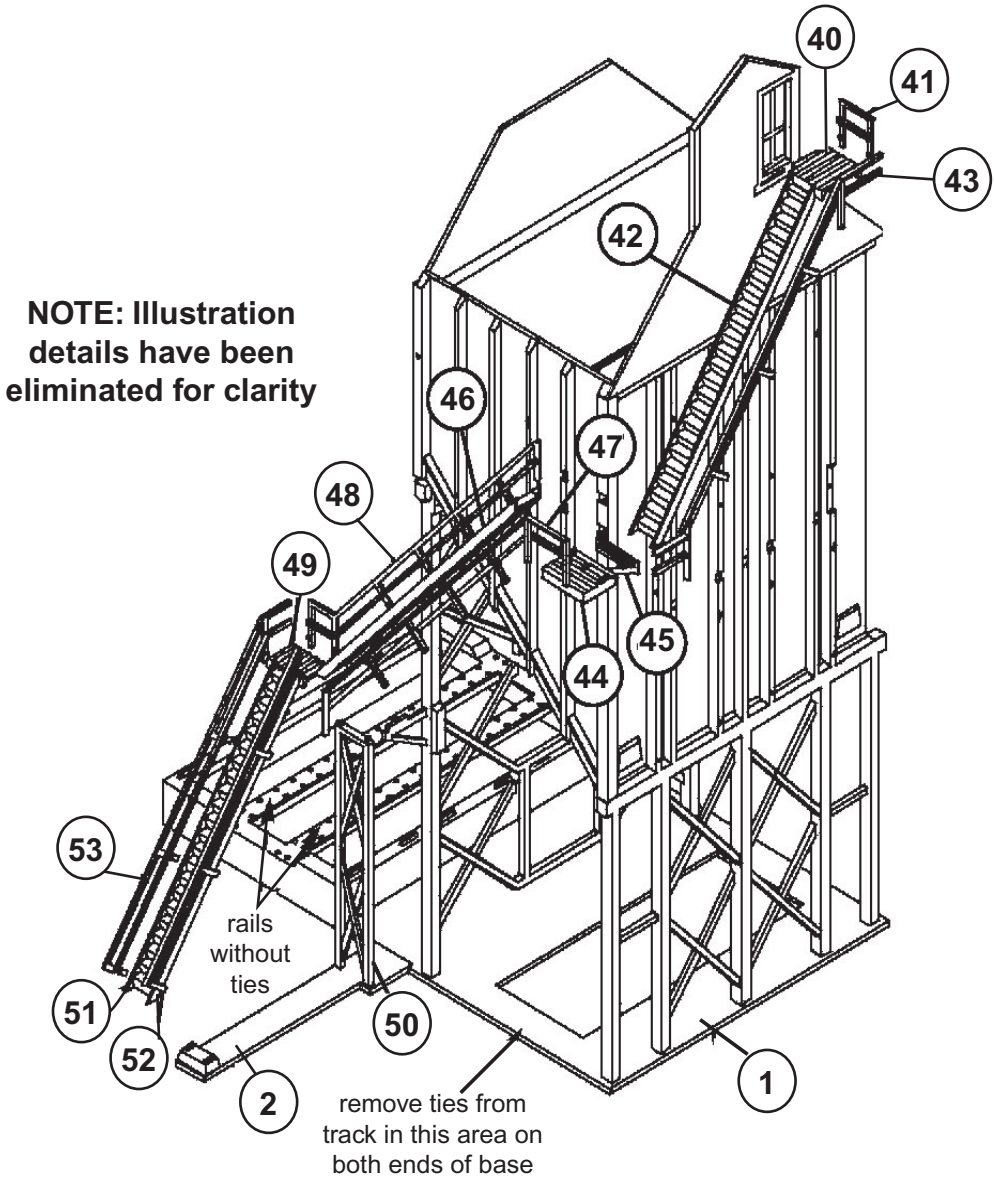


Outside Chute Rigging

1. Cut the thread to two equal lengths of 10 cm.
2. Glue one end of the thread into the hole in the chute side, run it up around the pulley and then through the hole at the top of the weight (67). Repeat for other side.
3. Cut a length of thread 5 cm.
4. Glue one end of the thread into the hole in the gate lever (69) and let the other end drop down through the opening in the chute.



13. Glue the lower platform (49) to the top of the support (50), and then glue this to the base (2). Note: Do Not glue #2 to #1 at this time, wait until stairway is complete. This will allow you to align parts more easily. Glue the lower handrails (52, 53) to the lower stairway (51) and then to the base and side of platform.
14. Glue the middle handrails (47, 48) to the middle stairway (46). Glue bracket (45) to the middle platform (44). Then glue this to stairway #47. Next glue this assembly in place, putting the pegs on the back of the bracket into the holes in the side of the wall.
15. Glue the top platform railing (41) onto the side of the platform (40). Glue this into the slot in the front wall. Next, glue the top railing (43) to the top stairway (42) and then in place to the top platform.
16. Using track of your choice cut off the ties where the rails go over the concrete pad in the loading area of the base. Then, using another piece of track cut off the ties from the rails so that the rails will sit flat and between the bolt heads on the two raised horizontal beams in the unloading area.



DECALING

1. After cutting out the decal, dip in water for 10 seconds, remove and let stand for I 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 the 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®.