



# N Structure Kit

## **SANDING TOWERS AND DRYING HOUSE**

933-3813

Thanks for purchasing this Cornerstone Series® kit. Please study the instructions and drawings before starting. All parts are styrene plastic, so use compatible glue and paint to assemble your model.

Since there's little resistance and almost no friction, steel wheels roll easily against steel rails. That makes it easy for trains to move very large and heavy loads. But in spite of the great weight of the engine, a little dust, oil, snow, rain or ice can make the rails too slick to get a proper grip. And starting a stopped, heavy train or climbing a grade, the fight with gravity can cause engine wheels to slip and spin furiously, stalling the train or damaging the wheels and rails. To overcome these problems, a fine stream of sand can be applied to the rails for extra gripping power, or to help stop the train in an emergency.

Before 1850, many locomotives carried a supply of sand on top of the boiler in a box-shaped reservoir that came to be known as the "sandbox." In this position heat from the boiler kept the sand dry and allowed gravity to deliver the sand to the rails. Both sides of the sandbox were fitted with small mechanical releases that the engineer could open and close as needed. When open, sand flowed through small diameter discharge pipes from the sandbox to a point just ahead of the front driving wheels. By the 1850s, the sandbox was giving way to the more elaborate "sand dome" which did the same job, but was round in shape.

Keeping the sandbox full became a regular part of engine servicing chores. When engines were small and

trips were short, the work could be done by hand. But rising costs, bigger engines and faster schedules required more efficient facilities.

Later sanding facilities consisted of several structures. These were typically located along the same dump track as the coaling tower to unload gondolas of wet or "green" sand into a large storage bin alongside the tracks. Next to the bin stood the sand house. Inside, sand was first shoveled through a screen to remove any debris, then dried in a special coal-fired stove. Using compressed air and a system of pipes, the clean, dry sand was blown to a sanding tower. These could be attached to the sand house itself, or located some distance away; sometimes as part of a coaling tower or as a freestanding facility. Freestanding towers consisted of a large storage bin, supported by heavy legs. At trackside, a small spout was lowered from the bin, and gravity made quick work of refilling the engine's sandbox.

Like steam locos, diesels also require a supply of sand for traction. In most cases, existing steam-era facilities could be used as-is, or modified at reasonable cost to service the new motive power. As a result, many older sanding facilities have remained in use since the end of steam operations. Over time however, faster and cheaper ways of drying, shipping and delivering sand have been developed, especially at major diesel servicing tracks that handle multiple unit consists. While many older facilities have been removed, some are still in service at smaller terminals.

### ON YOUR LAYOUT

Capturing the character of North American structures, your new model is typical of sanding facilities found at most major engine terminals. It includes two separate sanding towers: a smaller capacity sand tower like those used in the steam-era or on shortlines, and a larger tower suitable for first and second generation diesels.

This structure is one of several that allows you to model a typical service track scene quickly and easily. Be sure to check out the Modern Roundhouse (#933-3260) and the Modern Roundhouse Add-On Stalls kit (#933-3261) which includes matching roof panels, doors and interior truss work for three additional stalls. For a more complete facility, the Machine Shop (#933-3264) can be added to further detail your new roundhouse.

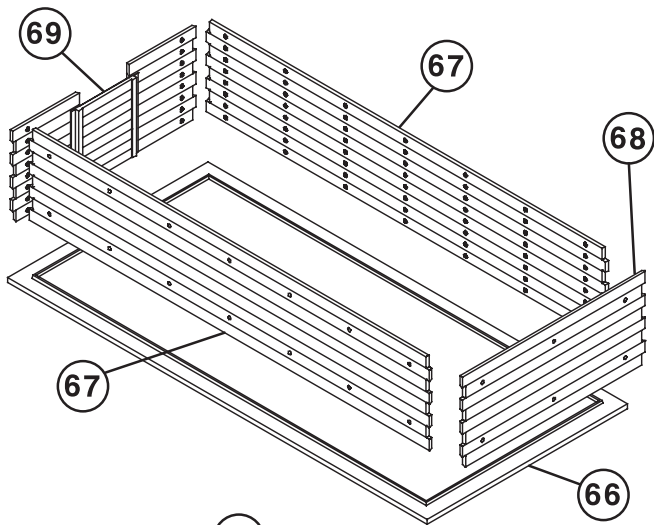
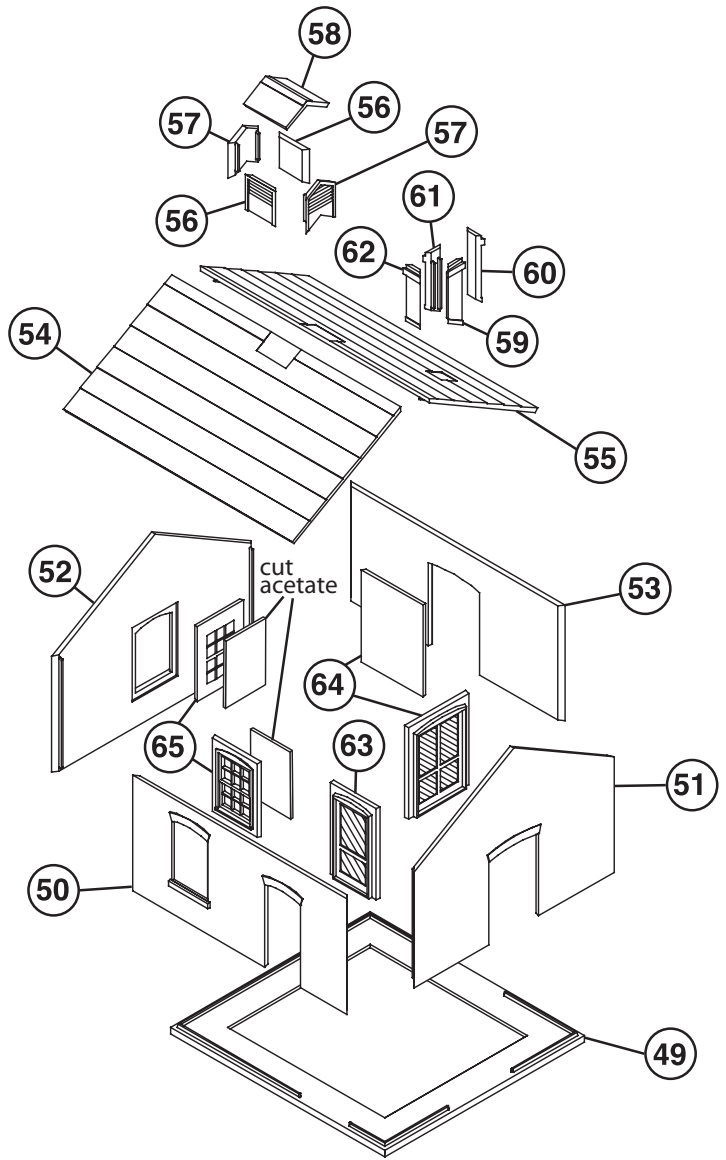
You'll also need the Modern 130' Turntable (#933-2613) which holds locos as large as a 4-8-8-4 Big Boy, and comes completely assembled, with motor drive, indexing unit, one-piece pit and detailed bridge.

To complete your facility, add the Cinder Conveyor and Ash Pit (#933-3181), Modern Coaling Tower (#933-3262), Steel Water Tank (#933-2601) or Wood Water Tank kit (#933-3531).

For more ideas to detail your scene, ask your dealer, visit [walterscornerstone.com](http://walterscornerstone.com) or see the latest Walthers N&Z Scale Model Railroad Reference Book.

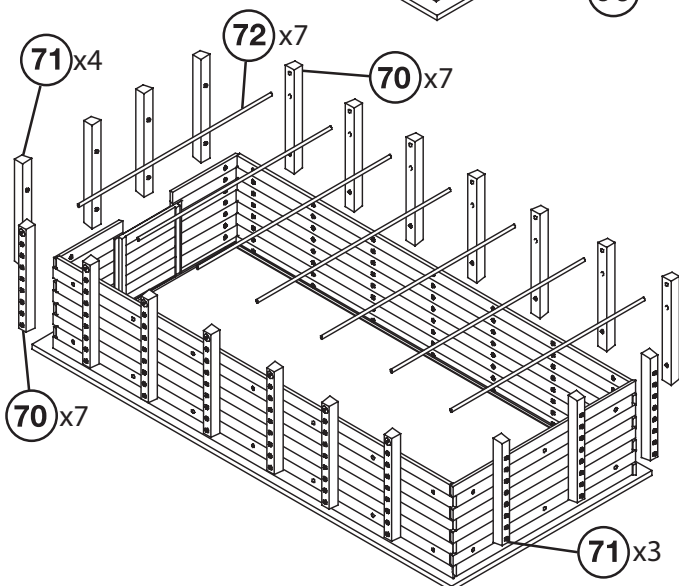
## DRYING HOUSE

1. Glue the windows (65) and doors (63, 64) into the appropriate openings in the backs of the walls (50, 51, 52, 53).
2. Cut "glass" pieces from the sheet of acetate to fit on the backs of the windows (65). Glue in place with white glue.
3. Glue the walls (50, 51, 52, 53) together and to the base (49).
4. Glue the roof halves (54, 55) in place.
5. Glue the vent housing (56, 57, 58) together and to the roof.
6. Glue the chimney (59, 60, 61, 62) together and to the pad on the roof.



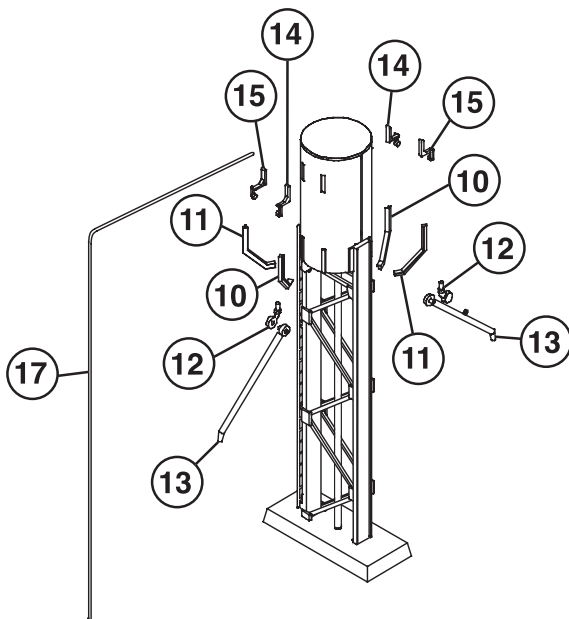
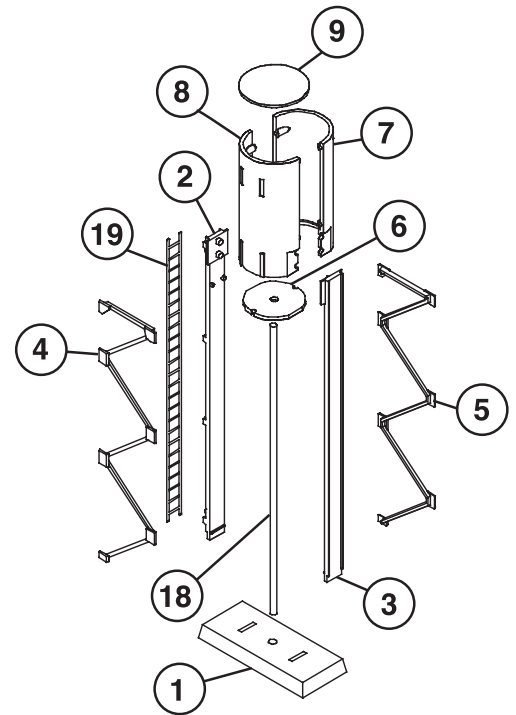
## SAND BIN

1. Glue the walls (67, 68, 69) together and to the base (66). Note: Make sure the holes found on the sides of the walls face outwards.
2. Glue the side (70) and end (71) supports into the holes on their respective walls. Note: Support #70 has a hole at the top that should face inwards.
3. Flex the tie rods (72) to insert the ends in the holes at the tops of the side supports (70).



## SMALL SANDING TOWER

1. Glue the tank halves (7, 8) together.
2. Glue the top (9) and bottom (6) in place.
3. Glue supports (2, 3) into the holes in the sides of the tanks. Then glue the supports into the base (1). Glue the ladder (19) onto part #2.
4. Glue the sand pipe (18) in position. Next glue the side braces (4, 5) on as illustrated. Note: The top of the brace should rest on the top of the nub found on the inside of part #2.



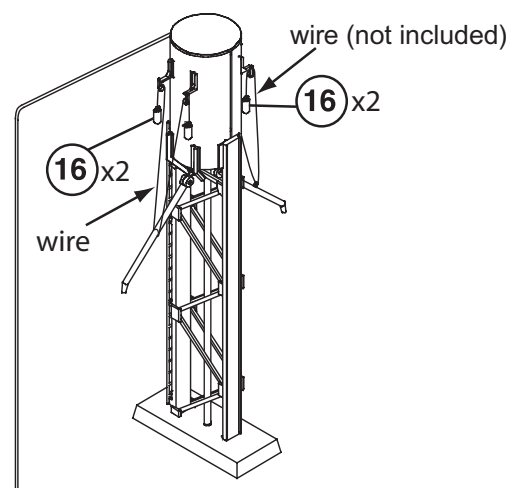
5. Glue braces (10, 11) to tank on the outsides of the vertical ridges and below the top rung on the side braces.

6. Glue the pulley brackets (14, 15) into the slots on the upper half of the tank sides. Note: When removing from sprue, be careful not to cut off the lugs at the end of the part; this is part of the "pulley".

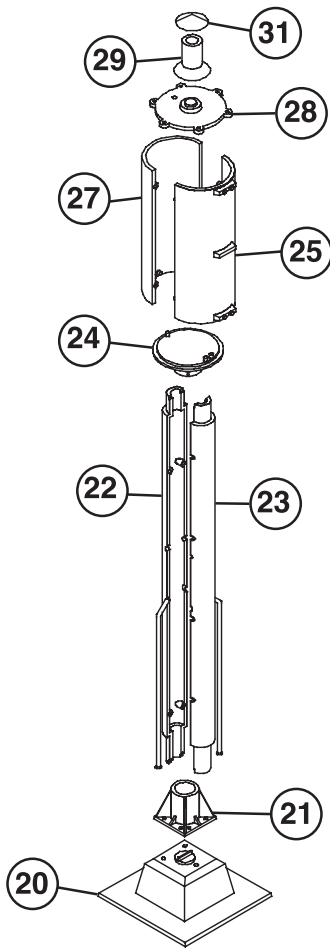
7. Press spouts (13) into the spout base (12) and then glue the bases into the holes in the tank bottom.

8. Glue air pipe (17) into the hole in the tank top.

9. Strip a piece of multi-strand electrical wire (not included), select one strand and cut two pieces each 4" long. Put one end of the first wire through the eyelet of the counterweight (16) and glue in place. Then run the other end around the spout, proceeding through the eyelet of the second counterweight and glue in place. Loop the wire over both pulleys allowing the counterweights to hang down. Repeat the process for the other spout.



## LARGE SANDING TOWER



1. Glue the tank halves (25, 27) together.

2. Glue the top (28) and bottom (24) on. Note: The top has a gap in the inside ring that positions over the peg on the inside of part #25. The bottom has pegs that correspond with pegs on the insides of part #'s 25 and 27.

3. Glue the column halves (22, 23) together and then into the bottom of the tank. Note: There are tabs that fit in the slots at the top of the column to position the parts correctly.

4. Glue the footing (21) to the base (20).

5. Glue the column into the footing. Note: Align the grooves in the bottom of the column with the ridge on top of the base.

6. Glue the vent (29, 31) together and to the top of the tank.

7. Snap the ladder supports (37) into the holes in the sides of the column. Then glue the ladder (39) to the supports and top of the tank. Next glue the cage (40) to the ladder.

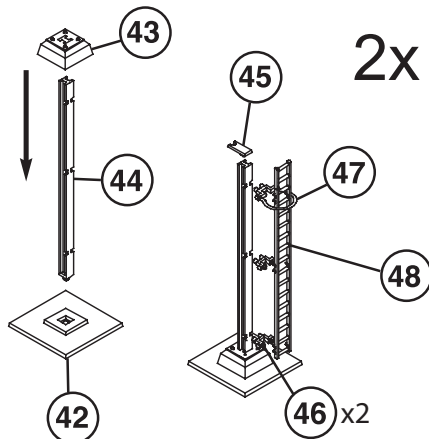
8. Glue the sand delivery pipes (35) into the holes in the sides of the column and also in the tank bottom. Then glue the sand intake pipe (33) to the top of the tank.

9. Glue the railing (41) into the holes around the outside of the top.

10. Slide the I-columns (44) up through the holes in the outrigger pads (43). Then glue the pads to the outrigger bases (42) with the peg on the bottom of the column going into the hole in the base.

11. Glue the ladder brackets (46, 47) to the columns. Then glue the ladders (48) in place. Next glue the pipe bracket (45) on the top of the column.

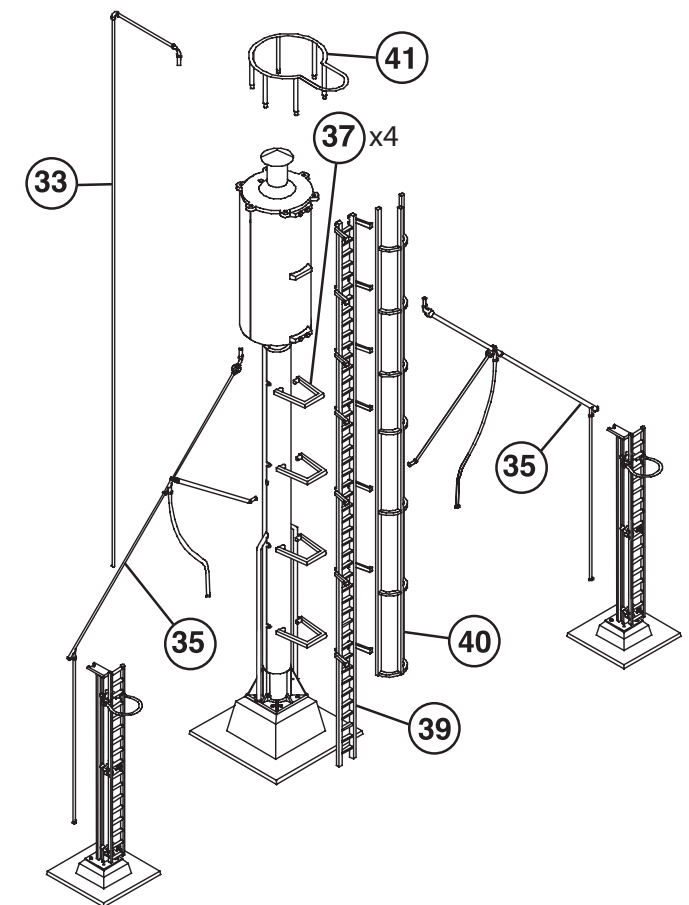
12. Glue the finished outriggers to the sand delivery pipes (35).



## 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<sup>®</sup> 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<sup>®</sup>.

Note: To use the decal as a sign board, cut out sign from the sheet, closely following the outline, and apply to the building using a white glue.