



N Scale Kit

CITY WATER TOWER

933-3815

Thanks for purchasing this Cornerstone Series® kit. Please take a few moments 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.

With the rapid growth of cities and industry in the 19th century, maintaining a supply of fresh water became increasingly difficult. Residents typically depended on nearby lakes or rivers. But problems arose as cities expanded and natural sources became polluted. Residents either dug shallow wells, or purchased water from peddlers going door-to-door.

Major cities relied on wells, lakes, cisterns (rain run-off collection) or reservoirs. All were gravity systems with pipelines that worked while demand was small, but as demand increased, so did problems.

Big cities built modern waterworks, but steam-driven pumps couldn't supply enough pressure for taller buildings; pipes rattled and shook as pressure in the lines surged and air in the system caused interruptions in water flow. Wooden water tanks fed by pumps began to dot the rooftops of tall buildings, ensuring tenants on the upper floors a consistent water supply with relatively constant pressure.

Tall water towers, the most visible portion of municipal water systems, are really just one part of the process. The first city water towers were actually vertical standpipes that allowed water to rise and fall to equalize pressure, eliminating knocking pipes. Elevated tanks were incorporated into the design to reduce wild fluctuations in water pressure and to provide a reserve supply should the pumps fail.

Freestanding riveted-steel tanks began appearing in the early 20th century. These were based on the same design principles, but typically held a full day's water supply based on needs when they

were constructed.

Water was drawn directly from rivers or man-made or natural lakes, but in many areas, wells reach underground sources. Pumps lift and move the water to a treatment station where filters and chemicals remove natural and man-made impurities so the water is safe to drink.

Most cities build their water systems to meet average demand which allows the use of smaller, less expensive pumps that supply pipelines at a constant pressure of 50 to 100 PSI. But on a typical morning, folks taking showers, making coffee, flushing toilets and so on may push demand up by a factor of four or more. That's when the water towers kick in. During periods of high demand, they release water into the system via gravity in order to maintain constant pressure. During periods of low demand (such as at night), the pumps refill the tanks.

Water has to reach all of the surrounding homes and businesses, so the pressure of the water discharged from the tank must match that of the pipelines. To do this, tanks must be built to a specific height. But since this could require a very tall and expensive structure, engineers take advantage of local terrain, building water towers on the highest spot available.

As cities have grown, so too have the capacity of the towers. Older riveted-steel tanks like this model held up to 50,000 gallons; modern replacements like the Modern Water Tower (933-3814, sold separately) typically hold about 100,000 to 150,000 gallons, but larger ones aren't uncommon. The tanks ideally hold a day's supply, but should there be an extreme demand, such as a large fire, the water in the towers can also be released into the system as a back-up supply.

City water towers have also become landmarks in the communities they serve. In small towns they're most prominent, most have been emblazoned with the city

or owner's name, and some also sport a city slogan or logo. In many communities, they also have the high school team's logo and may be painted in school colors. The venerable towers have even made it into country music; Joe Diffie's song "John Deere Green" is about a lovestruck boy who paints a huge heart on one for his girl!

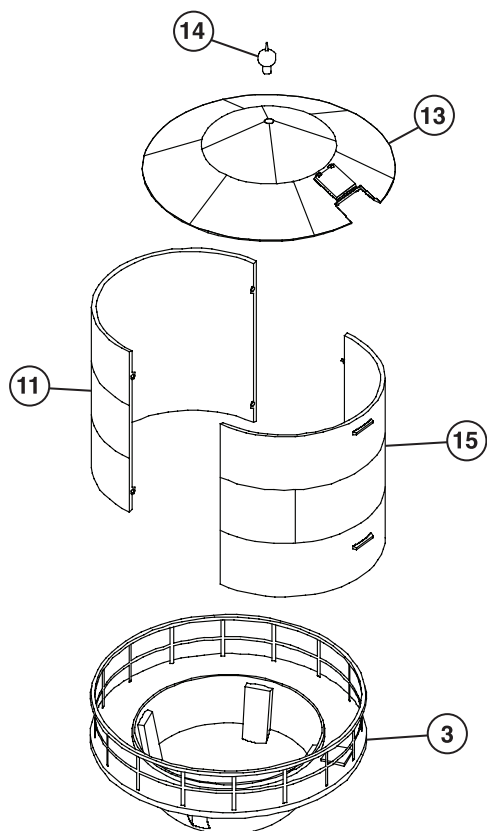
ON YOUR LAYOUT

Typical of older tank designs in use across the continent since the early 1900s, your new model adds a landmark to any city scene. Tanks of this kind can also still be found at many large industrial and military complexes that require a large supply of water. Even some large railroad yards had tanks like this to serve shops and facilities.

Like the prototypes, the tank requires very little layout space and allows you to detail areas that might be too small for conventional buildings. As the prototypes are typically built on hills, it can easily be blended into existing scenery.

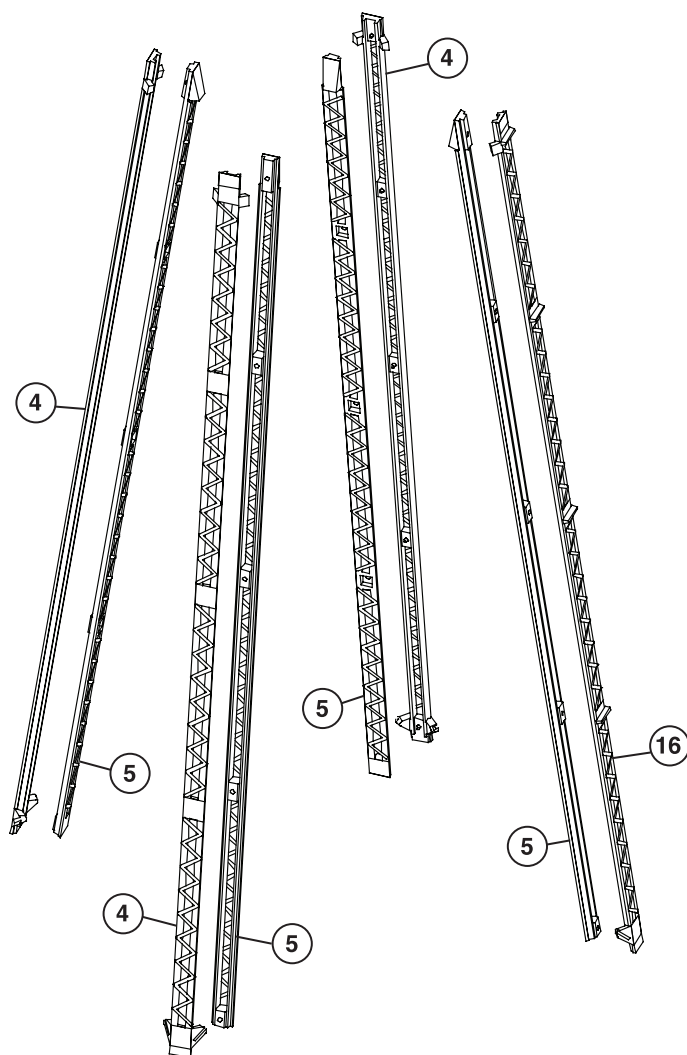
In a smaller community, your new tower can be used with the Cornerstone Series® Modern Water Tower (933-3814). This newer design is typical of towers built from the 1960s to the present and could be located next to this tower or in a newer residential area or industrial park.

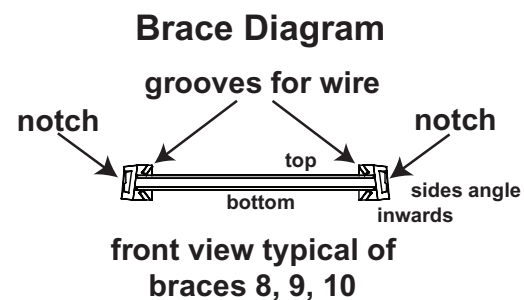
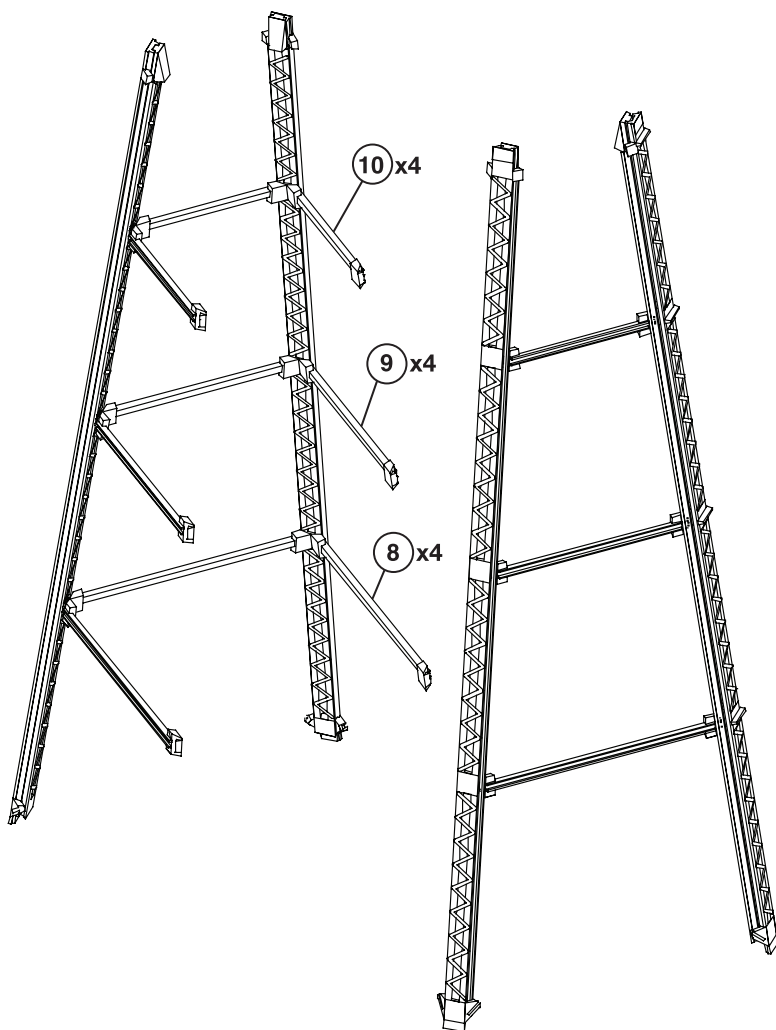
For additional items to detail your scene, visit your local hobby shop and waltherscornerstone.com, or see the latest edition of *Walthers N&Z Scale Model Railroad Reference Book*.



1. Open the hole in the tank bottom (3). Glue the tank sides (11, 15) together and to the bottom (3). Note: Make sure that the horizontal ridges on #15 are over the raised pad on #3. Glue on the roof (13) with the opening over the ridges and the pad. Glue the finial (14) on top. Set aside.

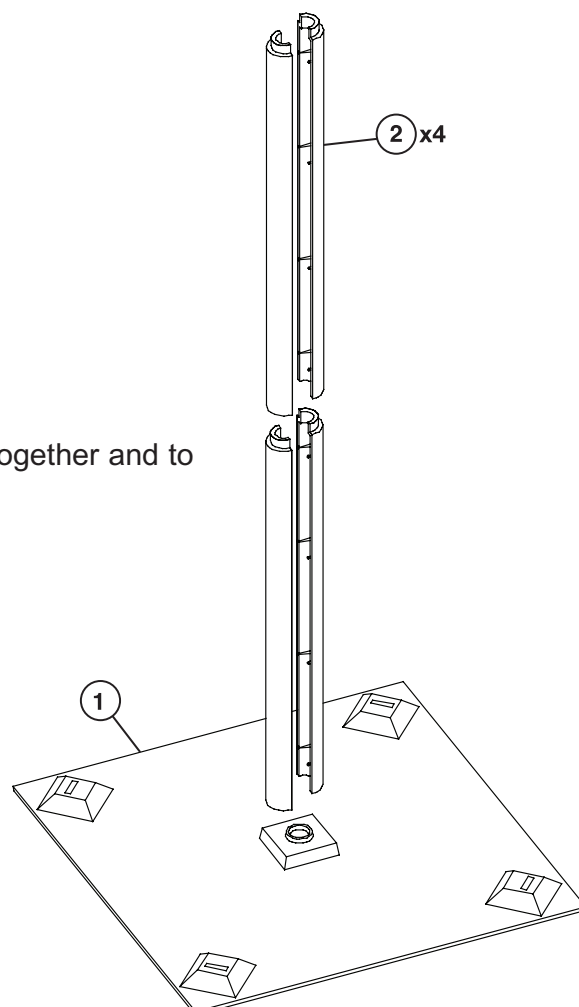
2. Glue the vertical support halves (4, 5, 16) together.



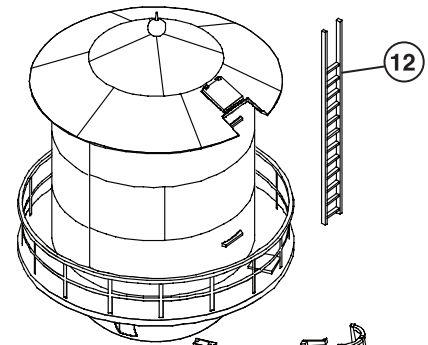


3. Glue two sets of the vertical supports together using the horizontal braces (8, 9, 10) as shown. Note: Consult diagram on how the braces should be orientated. The notch fits around the pegs on the inside of the supports. On one of the completed sets, glue on the remaining braces (8, 9, 10). Then glue the remaining set to these braces. An optional method would be to glue the braces to one side of the support, glue on another support, glue on the braces to that support and proceed around until completed. Then set this assembly aside.

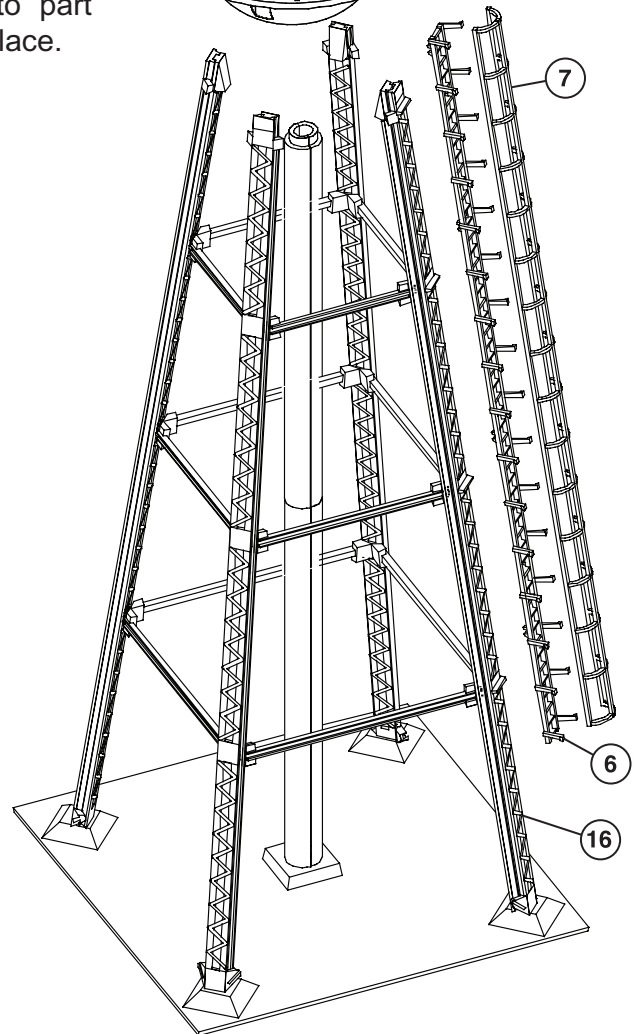
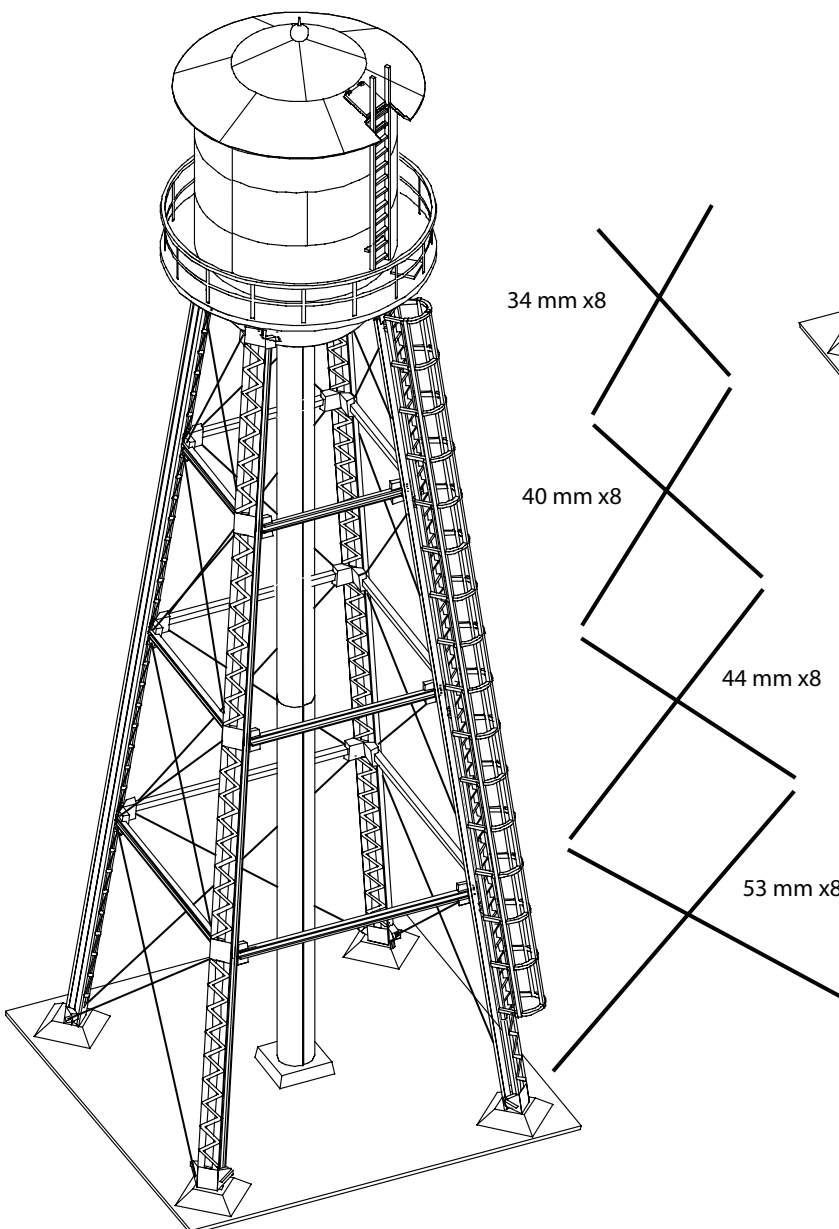
4. Glue the pipe (2) together and to the base (1).



5. Glue the completed support (from step 3) into the slots in the base. Next glue the assembled tank (from step 1) on top of the pipe and support. Note: Make sure that the roof opening on the tank lines up with vertical support #16. Glue the caged ladder (6, 7) together and to part #5. Glue the tank ladder (12) in place.



6. Using a CA type glue, glue the wires (there are eight of each length) in place as shown.



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 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®.