

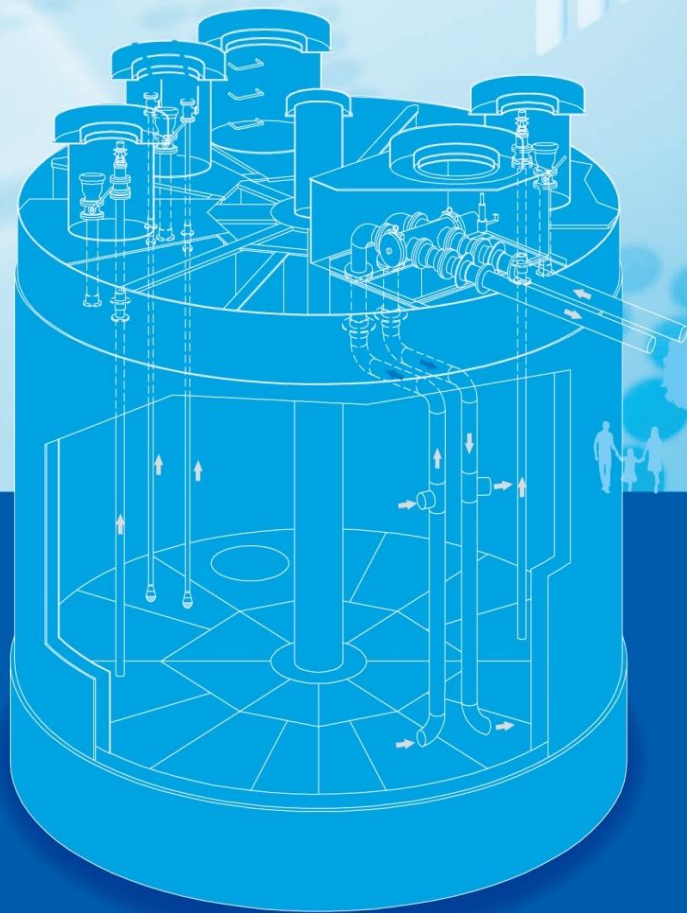
Earthquake-resistant Drinking Water Tank

[SAND MAGIC®] *Liquefaction floatation prevention*

Sand Magic / 7.5 ASL

Safe Water Anytime

Supplies safe essential water in times of emergency



Responsibility to provide safe adequate quantity of water during disasters...

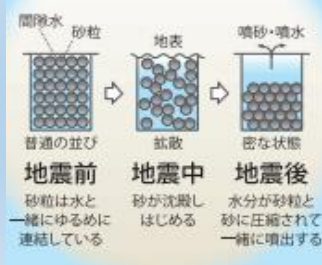
We have this concept that water is always easily accessible.

Unfortunately, this is not the case in the event of disasters. Access to adequate supply of water will be tough unless you have a water reservoir with high durability. Kanasashi's drinking water storage tank has an earthquake-resistant structure which can withstand liquefaction in the event of major earthquake.

What is a liquefaction phenomenon?

This is a phenomenon in which the ground becomes liquid due to vibrations cause by large earthquake. It occurs on sandy ground with high ground water level, and generally thought to occur in reclaimed land. But it has become clear that it can also occur in areas that were once rivers, ponds, and rice fields. When the ground shakes, the fragile sandy ground mixes with high-level ground water. As only the sand grain settles, the ground water pressure increases rapidly, causing water to gush to the surface. As a result, heavy structures may sink and tilt, while lighter ones as sewer pipes may rise to the surface.

Liquefaction Mechanism

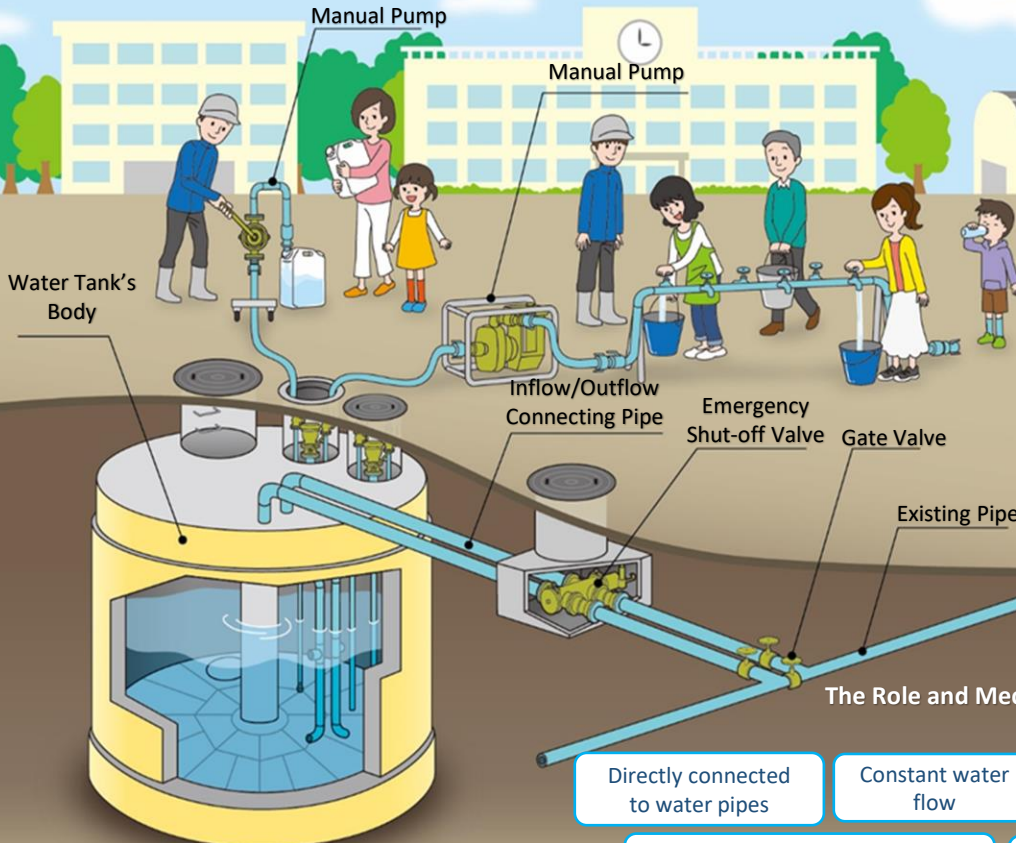


What does a dual-use water storage tank means?

It is an earthquake-resistant water storage tank which allows you to drink the water inside. It's a hybrid between a drinking water tank and a fire-hydrant tank. Connected directly to water pipes, tap water is constantly circulating. Therefore, the tank is always full of ready-to-drink water. During the first three days, the tank can secure enough supply for approximately 11,000 people. This is the most crucial period when disaster comes.

◎ A Water Reservoir that Always keep Fresh Water ◎

Our earthquake-resistant water reservoir does not only supplies domestic water in the event of disasters, it can also be utilized as a water source for fire-hydrants.



Example of use:

This is an example on how to setup in a school for use as an evacuation center. When a sudden drop in pressure is detected due to possible leak in a water pipes, an emergency shut-off valve is automatically activated in order to secure the tap water inside the water reservoir.

If the water pressure is low or can no longer be applied, you may use an engine pump or manual pump.

The Role and Mechanism of Earthquake-resistant Drinking Water Reservoir

Directly connected to water pipes

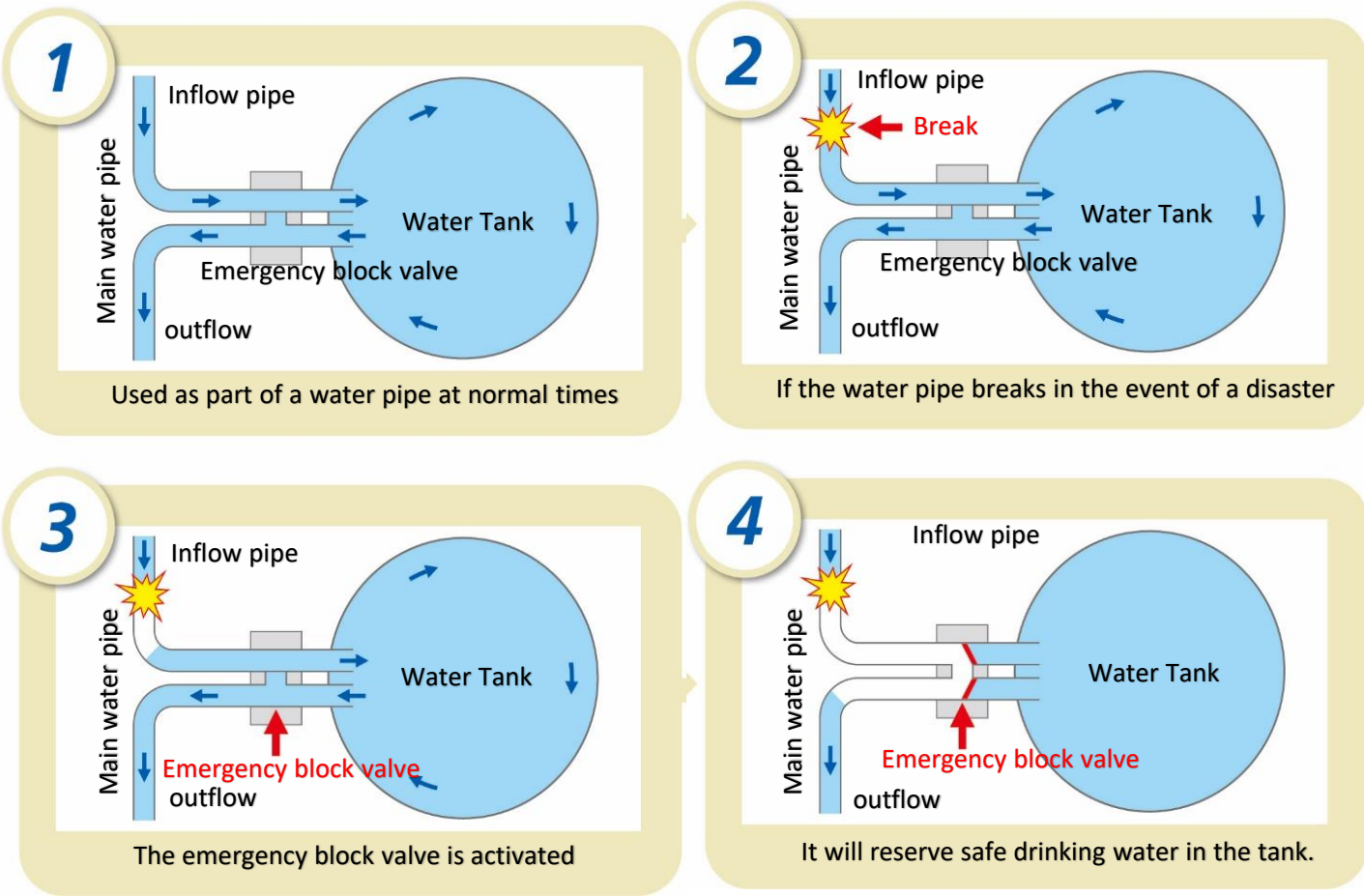
Constant water flow

Shut-off valve operates when water is cut-off

Use as emergency water supply during disasters

Combined use for fire hydrant and water supply

Water reservoir mechanism to keep fresh water



Water Circulation Test

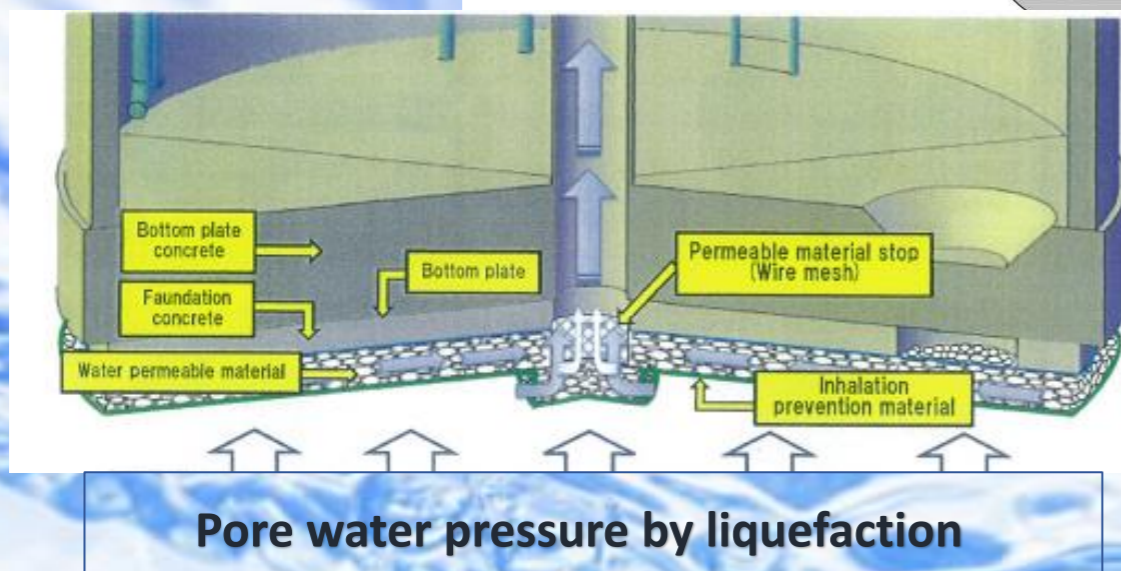
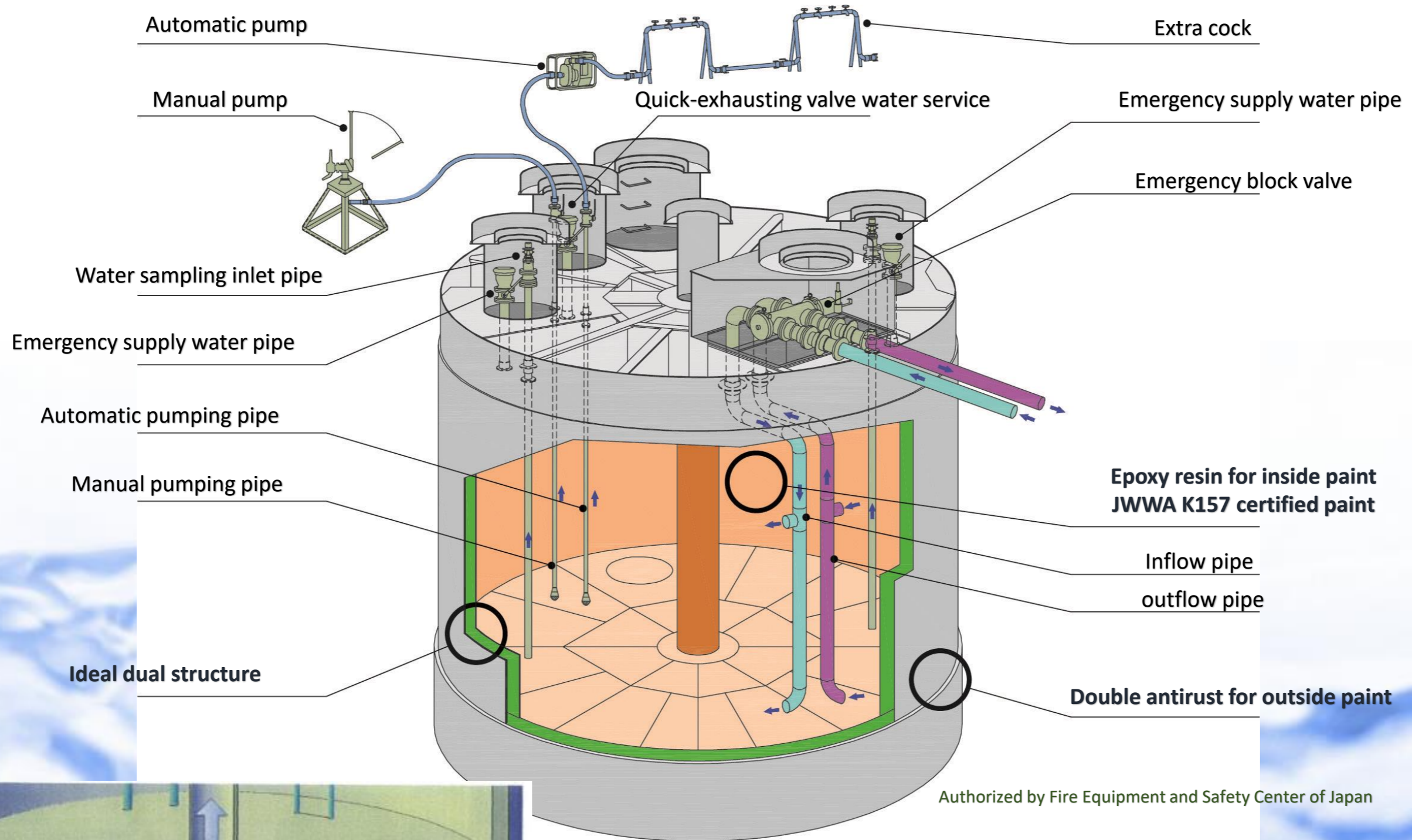


The water was filled with red food coloring to begin the experiment. Then start pouring a clear clean water.

The transparency of the water started to change inside the reservoir, the pipe inside becomes visible. We device this shape of pipe to improve water circulation performance.

The water became transparent. The water has been replaced.

Earthquake-resistant Drinking Water Tank



Pore water pressure by liquefaction

1ST IN THE INDUSTRY

The water tank is equipped with a floatation prevention function due to liquefaction.

Unique mechanism with patented technology built into the product body (Sand Magic). The pore water pressure of ground water generated by liquefaction is released to the ground without being affected by the bottom of the water tank. This prevents it from floating to the ground and supports the continued use of the equipment.

CERTIFIED BY FESC

Our water tank has been certified by Japan's Fire Equipment and Safety Center (FESC) ensuring that we meet the standards stipulated by the Fire Service Act in terms of earthquake resistance, overload, quality control, etc.



CONSTRUCTION

1



Primary Excavation

Excavate the top soil before assembling the side slab. After excavation, level the bottom ground, locate the center and adjust the level. Depending on the local construction regulations, mountain retaining (liners, control panels, sandbags, etc.) will be needed.

2



Lower Segment Assembly/Welding

Assemble and weld the four lower parts at the primary excavation site..

3



Upper Segment Assembly/Welding

Place the upper side plate segment on top of the lower side plate segment to assemble the parts. After constructing the scaffolding, weld each joint and install the electrical corrosion protection rods.

4



Secondary Excavation

Perform sinking excavation using clamshell. If water occurs from the ground, use a submersible pump to drain the water .

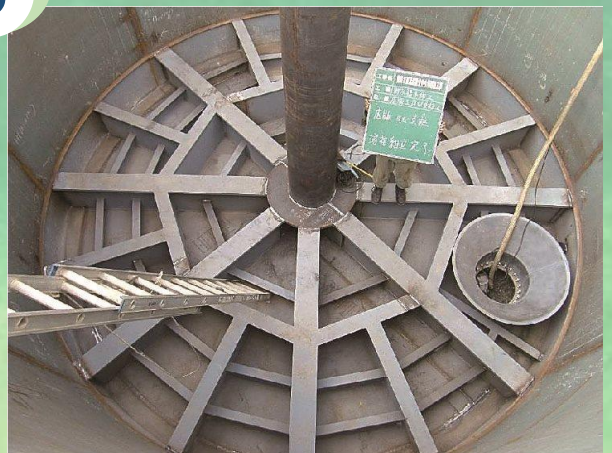
5



Foundation Work

After locating the pot (pit) and placing a lightweight aggregate, the first concrete placement will take place.

6



Bottom Plate/Sill Plate

After assembling and welding the bottom slab, pour the second concrete cast.

7



Top Plate Work

Assemble and weld the top plate

8



Manhole Work

Install the water intake manhole, emergency shut-off valve room, and inspection hole. Then perform the 3rd and 4th concrete pouring.

9



Pot Tightening / Pit work

After backfilling, tighten the pot.

10



Resin Painting

Clean the tank and paint the internal part with resin painting for finishing.

11



Testing

Perform each necessary testing, welding inspections, pressure test, water infiltration test, water quality tests.

12



Completion

Once all test are performed and passed the inspection. Water will start flowing through the connected water pipes.