

# SHIPPING CONTAINERS

Whether you use them for offices or just storage, shipping containers offer a smart, low-cost and portable solution.



**Affordable, portable and customizable, these steel boxes make great storage units, and jobsite offices.**

**S**hipping containers (dry storage containers) are being converted into everything from residential and commercial spaces to storage and industrial facilities. As single or combined units, these containers are often retrofitted to become data centers, pop-

## PART 1

up stores/bars, housing, portable schools, restaurants, emergency centers, workshops, offices, and especially, storage units.

The construction industry is generally credited with the initial mass use of shipping containers for

storage. And while they offer an attractive option, there are several unique challenges when using them for construction tools and material storage.

In part one, we'll look at how to evaluate, buy and take delivery of a shipping container. Next month, we'll look at how to control heat

and humidity and what you can and shouldn't store in these units.

**Surplus brings down price**

There are more than 34 million shipping containers in use around the world. Some 12 million arrive in the United States every year, but more arrive than leave due to our trade imbalances, and the surplus keeps prices low. Each box is capable of holding 55,000 pounds of goods and has a service life of about 10 to 12 years with a life expectancy of 20 to 25 years if reasonably maintained.

Shipping containers are designed and built to ISO Standards maintained by the International Maritime Organization's (IMO) "Convention for Safe Containers" standards. For practical purposes, this means they can take a beating and survive harsh environments, such as rough weather on oceans, and vigor-

ous reuse. They are durable, safe (ground-level access), and hard to break into – all reasons more contractors are using them for storage.

Each container has a unique 11-digit alphanumeric serial number. You can use this code to find out where the container has been and what it has carried. Dry goods are usually not a problem, but some chemicals might be. The serial number can also tell you if the unit was a one-time-use container, meaning it was shipped once and has not made multiple trips across the ocean. These units are typically in much better shape. A vendor can help you decode the serial number, or you can find the translation online here: <https://www.csiu.co/container-prefixes>.

They are also sized by the Twenty-foot Equivalent Unit (TEU), so a 20-foot container is 1 TEU, and a 40-foot container

is 2 TEU. And they are referred to as Connex (or Conex), which was a military acronym denoting con(tainer for) ex(port).

**Inspecting a used container**

You can buy shipping/storage containers online, but a visual inspection is recommended.

First, make sure the container has a steel lock enclosure. A carbide shank lock is best but avoid long shank ones that extend beyond enclosure. Check door seals to make sure they are in good shape and provide a full seal. Make sure the locking handles function, because they are exposed to saltwater and can rust. Check the hinges' integrity, as they are also subject to rust from saltwater. Check the door swing to make sure it is catching.

Go inside and close the door. If you can see light emitting from any wall or ceiling or corner post, water



Delivery of your used shipping container demands that you have your foundation ready and have space for the truck to maneuver.

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can get in as well. Check interior and exterior conditions of corrugated panels, because serious dents can lead to rust and leakage. Make sure the door cam is catching and locking properly without much pressure or assistance. Check edge molding inside to ensure there is no leakage or cracks that will allow seepage. You can check for warping (shifting loads can warp containers) by dropping a vertical string and securing the top and bottom ends to check parallelism of vertical supports.

Check flooring for warping, holes and stains. Large stains probably indicate spills, which could pose a risk based on what leaked or dropped. Newer units have poly-coated flooring. Also, check under the flooring for evidence of corrosion.

There are several grades: Premium, A, B and Refurbished. Marine surveyors certify these as Wind and Water Tight (WWT). The Premium rating indicates a unit less than eight years old in excellent shape. Grade A and Grade B are eight years old or older. An A is cargo-worthy, while a B has significant rust or damage. While not deemed cargo-worthy for the shipping industry, they are usually suitable for storage. Be careful with ones graded Refurbished, as the quality of the refurbishment may be superficial.

If the container will be used for more than storage, consider high cube containers. These are more appropriate if you will be insulating or installing overhead fixtures like lights, as they are a foot taller than normal shipping containers. Based on length, standard containers are 1,700 cubic feet, while a high cube is 2,500 cubic feet. But high cubes are a little more challenging to ship. Look for new ones, as they have a 10-year warranty and have never been used to ship potentially toxic

chemicals or sprayed to handle the saltwater from multiple shipments. New high cube containers are hard to locate and are normally about three times more expensive.

Bear in mind that the wooden floors used in the majority of shipping containers are treated with chemicals such as pesticides. Some shipping containers are coated in paint that contains harmful chemicals such as phosphorous and chromate. You can contact the original manufacturer of the container and inquire whether the floors have been treated with hazardous chemicals. Do so by locating your shipping container's unique identification number to track who manufactured the container.

### Prices

Depending on size and condition, expect to pay between \$1,400 and \$4,000 for a used shipping container. If you search Google for "shipping containers," you'll find dozens of vendors. Williams Scotsman, one of the leading vendors, has 90 locations across the country. You'll also find vendors online, including on eBay and Craigslist.

Some vendors also sell shipping containers that have been remodeled, with insulation, wiring, lights, doors, windows, air conditioning and finished wall, floor and ceiling surfaces – a complete jobsite office ready to go. You can also rent these refurbished containers to serve as temporary job trailers and storage.

Because of their compact, modular nature, shipping containers are easy and inexpensive to truck to a site. If you have a 40-foot trailer, you could ship two at once and save on

delivery costs. The 20-foot containers weigh about 4,500 pounds, and the 40-foot units are double that.

### Delivery

There are several ways to get the container off the delivery truck. Tilt-bed or roll-off trailers are common, and some deliveries will use a crane to hoist the unit off the truck and onto the foundation. When planning for the delivery, make sure the truck approaches the site with the trailer's doors pointed in the right direction. And make sure the delivery truck has about 100 feet in front of it to drop off the container and pull away.

Before delivery you need to have your footings or foundation prepared. It's recommended that you elevate the bottom of your shipping container off the ground for air circulation and to prevent moisture from creating rust. Wood cribbing, concrete piers or blocks on each corner will do the trick but make sure the foundation can handle the live load. In areas where high winds are frequent, you may want to bolt your container to the foundation.

Note that it is important that your foundation or footing is dead level. If it is out of level, you may not be able to open the doors. Shipping containers are exceptionally strong, but like anything built out of steel, they will flex.

Also, be sure you get a building permit and adhere to local building codes when putting a shipping container at your jobsite or on your property. **EW**



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