



HOW TO BUILD A **SHIPPING** CONTAINER

HOME

THE COMPLETE GUIDE

Sample Chapters

How To Build A Shipping Container Home: The Complete Guide



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Note to the Reader

Thank you for your interest in our guide! The two sample chapters here will give you a brief taste of what you can expect should you decide to purchase the full guide available on our website.

Whether you have been following us for a long time, or you have only recently discovered us, it's great to have you in our community.

If you have any questions about the guide, please reach us at the following email address: contact@discovercontainers.com

Sample Chapters

Introduction

Thank you for downloading these two free sample chapters of our guide:

- *Chapter Three: Choosing and Purchasing Your Containers*
- *Chapter Seven: Delivering and Siting Your Containers*

We hope you enjoy this short sample. If you'd like to find out more about the full guide available for sale, or to read more of our great free articles about all things shipping container, please visit our website at DiscoverContainers.com!

Sample Chapters

Choosing and Purchasing Your Containers

So you've planned your home and managed to get planning permission; it's time to purchase your containers. There are a variety of choices here, the most popular of which is the standard 20 or 40 foot container, or the High Cube 20 or 40 foot container. Please see the dimensions of each in the tables below.

Table 1: External Dimensions of a Shipping Container

| Container Type | Length | Width | Height |
|--------------------------|--------------------|------------|--------------|
| Standard 20 Foot | 19'10 1/2" (6.06m) | 8' (2.44m) | 8'6" (2.59m) |
| Standard 40 Foot | 40' (12.19m) | 8' (2.44m) | 8'6" (2.59m) |
| High Cube 20 Foot | 19'10 1/2" (6.06m) | 8' (2.44m) | 9'6" (2.90m) |
| High Cube 40 Foot | 40' (12.19m) | 8' (2.44m) | 9'6" (2.90m) |

Table 2: Internal Dimensions of a Shipping Container

| Container Type | Length | Width | Height |
|--------------------------|----------------|--------------|--------------|
| Standard 20 Foot | 19' 4 (5.89m) | 7' 8 (2.34m) | 7'10 (2.39m) |
| Standard 40 Foot | 39' 5 (12.01m) | 7' 8 (2.34m) | 7'10 (2.39m) |
| High Cube 20 Foot | 19' 4 (5.89m) | 7' 8 (2.34m) | 8'10 (2.69m) |
| High Cube 40 Foot | 39' 5 (12.01m) | 7' 8 (2.34m) | 8'10 (2.69m) |

**Please note each manufacture has slightly different tolerance levels, normally +-5mm, so make sure you contact the supplier to get the exact dimensions.*

Your choice will be made on both the availability of the containers in your local area, and also the plans which you've drawn up in chapter one. If you have the budget, and can source them, High Cube containers make a better choice because you get an extra foot in height inside the container which makes a big difference.

Purchase New, One Trip or Used Containers?

New and 'one trip' containers are essentially the same thing; one trip containers are used to ship a single cargo load and once they have arrived at their destination they are sold.

Clearly the decision of whether to buy new or used containers will most likely come down to your budget, however there are a few points to take into consideration.

New or one trip containers will be in much better condition than used containers so this will make it easier to build with them; they will also have a longer expected lifespan than used containers. In addition the risk of unknown chemical contamination is greatly reduced (most used containers are treated with hazardous chemicals such as pesticides and lead-based paint).

However, you pay the price for this as discussed later on in this chapter under 'How Much Should I Expect To Pay?'

Used containers do offer the advantage of being cheaper than new containers and you can get your hands on them much quicker. However be prepared to expect a few dints and potentially some light rusting.

For the project we are featuring they decided to buy two used standard 40 foot containers.

What to Look for When Purchasing Used Containers

If you decide to purchase new or one trip containers generally you won't need to inspect the containers too closely. However if you purchase used containers there are several key things to look out for:

- Make sure it is watertight and doesn't have any leaks (if you can see daylight coming through the container roof- don't buy it).
- Although you should expect typical wear and tear with the wooden flooring make sure it is still intact and doesn't contain any holes.
- Check the doors open freely and the locking bars work.
- Expect some dents and very light rust, however if the container has a large amount of corrosion to the extent where the metal is weakened or worse yet, you can see through it- don't buy it.
- Use your nose and check the container doesn't smell of mold (which would indicate leaks) or harsh toxic chemicals such as pesticides.
- Make sure you get up on the roof of the container and check it for any signs of leaks or corrosion.

Finally, check the container's identification code is intact. The identification code is broken down into 11 digits as shown below.



Owner Code: Is made up of three letters and identifies the owner. In this case 'TGH' belongs to the American company Textainer.

Product Group Code: Is made up of one capital letter U, J or Z.

- U = Shipping Container.
- J = Equipment that can be attached to a container such as a power unit.
- Z = Trailer used to carry a container.

Serial Number: A 6 digit number assigned by the owner.

Check Digit: is a single digital number, it's used to cross-verify if the identification sequence is accurate.

Where to Buy Your Shipping Container?

The simplest way to purchase a shipping container is to find a reputable local dealer. Green Cube Network has a fantastic search tool to find local dealers; take a look at their tool over at:

http://www.greencubenetwork.org/shipping-container-dealers_3/

Alternatively you can use google. Just search for 'shipping container dealer' followed by your location. For instance: shipping container dealer Texas. Or another term which works quite well is 'buy shipping container in' followed by your location. For instance: buy shipping container in Queensland. If you are still struggling to find a container try using eBay, Gumtree or Alibaba.

- <http://www.alibaba.com/>
- <http://www.ebay.com/>
- <http://www.gumtree.com/>

Tip: When purchasing your containers try to purchase them all from the same manufacturer. Manufacturers have slight variations which could make working with different brand containers difficult.

How Much Should I Expect To Pay?

Clearly this will vary depending on the containers you've decided to buy, however we have put some estimates below to give you a rough idea.

Used Standard 20 Foot Container: US\$2,100 | AUD\$2,700 | GBP£1,350

New Standard 20 Foot Container: US\$3,000 | AUD\$3,900 | GBP£1,950

Used Standard 40 Foot Container: US\$2,850 | AUD\$3,650 | GBP£1,850

New Standard 40 Foot Container: US\$5,600 | AUD\$7,200 | GBP£3,650

Used High Cube 20 Foot Container: US\$2,200 | AUD\$2,850 | GBP£1,450

New High Cube 20 Foot Container: US\$3,200 | AUD\$4,150 | GBP£2,100

Used High Cube 40 Foot Container: US\$2,950 | AUD\$3,800 | GBP£1,925

New High Cube 40 Foot Container: US\$5,800 | AUD\$7,500 | GBP£3,795

Checklist

- Decide Whether You Are Buying New or Used
- Buy Your Containers
- Set a Maximum Price

Sample Chapters

Delivering and Siting Your Containers

So your foundation has cured and the big day is here; it's time to put theory into practice. We find the day the containers get delivered on site the most exciting bar none.

Preparing the Base of Your Containers

Tip: It's not always possible to complete this step, and it isn't 100% required, but if you can it's worthwhile.

Once your containers have arrived on site, use a crane and hoist them up into the air one by one. Once the container is in the air the underneath of it needs cleaning and insulating. Sand blast the underside of the container to clean it and spray at least 1" of closed cell polyurethane foam to insulate the base of the container (see Chapter 14 (Insulating Your Home)).

If you don't have access to a crane on the day you can always do this once the containers have been sited, providing you have a raised foundation such as concrete piers.

Siting Your Containers

If your foundation is accessible to the truck delivering your containers you're in luck. Assuming the containers are being transported on a tilt flatbed trailer, the driver can back right up to the foundation and let the container 'slide' off the trailer onto the foundation. This is by far the cheapest and easiest method.

If the foundation isn't directly accessible you're going to need either a crane or a HIAB to lift the containers up and drop them in-place. A HIAB is the cheaper option however it will struggle to lift anything larger than a 20 foot container, so if you are using 40 foot containers you will need to use a crane. Although using a crane gives you a greater amount of control over the exact siting point, be prepared to pay around US\$700 | AUD\$890 | GBPE450 per day.

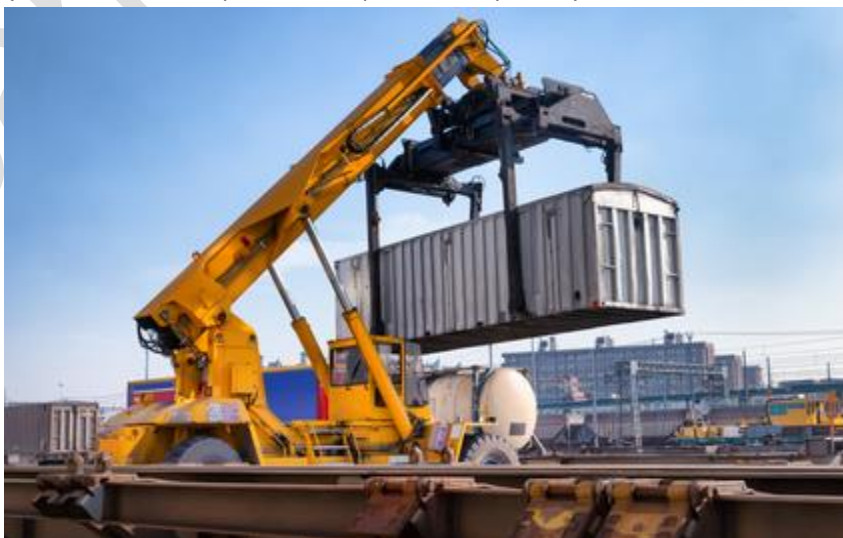


Figure 8.1: Unloading Shipping Container

Tip: whichever method you opted for make sure to put polyethylene damp proof membrane in-between the foundation pads and the shipping container.

If the containers aren't perfectly level you can use metal spacers, also called shims, to wedge the container up.

Connecting Your Containers

Once your containers have been sited they need cleaning. If you have purchased new containers you don't need to spend too much time cleaning them but certainly with used containers they need sand blasting.

Sandblast the inside of the containers first including the wooden floor, and then move onto the exterior making sure you clean the roof as well. If you don't have access to a sand blaster then you can do the same job with either a pressure washer, wire wool or a grinder.

Now your containers have been clean it's time to connect them to the foundation and to each other. Most of the time you can site the container on the foundation and the container's weight alone is more than enough to hold it in place. However if you'd like added security you can place a steel plate, for each corner of the container, on top of the concrete before it sets. Then you can weld your container to the plates for additional strength.

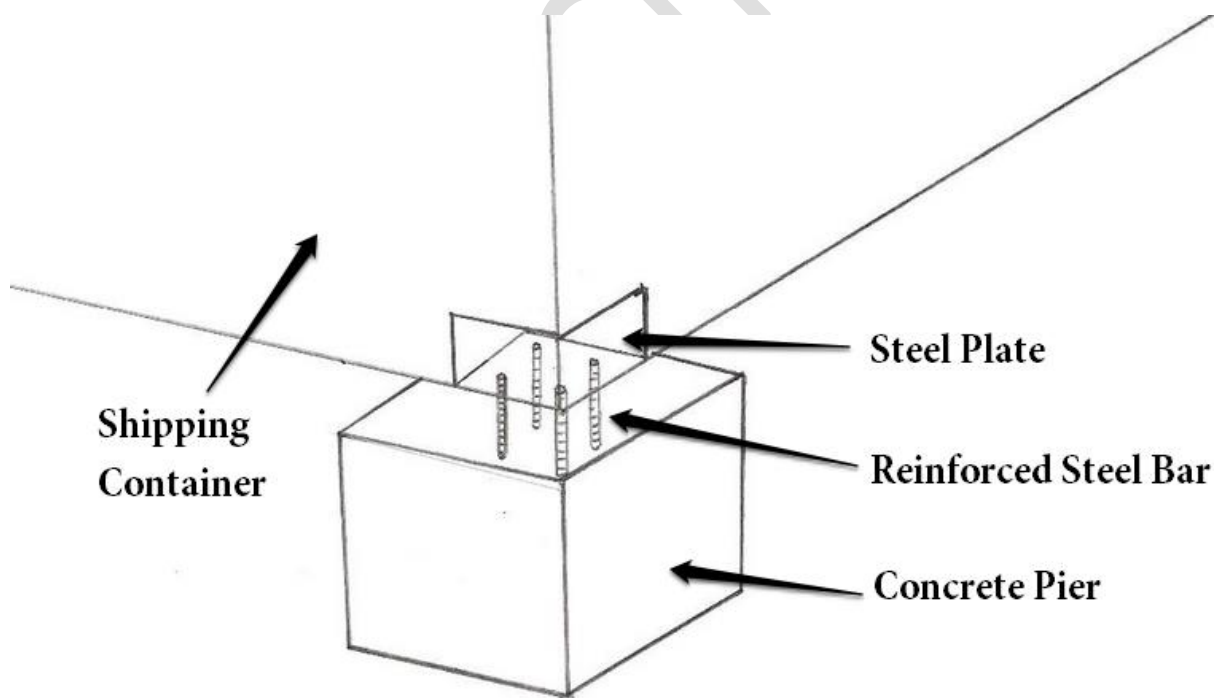


Figure 8.2: Fixing Shipping Container To Foundation

If you don't want to weld your containers to the concrete foundation you can bolt the containers to the foundation instead. Once you have sited the containers on the foundation, drill through the bottom corner fittings down into the concrete. Now place the bolt through the container corner fitting

and down into the concrete. A 1" x 12" bolt would be ideal here, if you're looking for a brand Hilti's 'concrete anchors' will be fine. You may need to use a hammer to knock the bolt down, once it's in place tighten up the nut and remember to use a washer in-between the nut and the corner fitting. One in each corner of the container will keep it secure.

Now you need to connect your containers to each other. You can use a variety of techniques to connect your shipping containers together including, bolting, welding and clamping.

Bolting Them Together

To bolt the containers together you need to connect the containers at the touching corner fitting points. You would drill through the corner fitting from one container into the other container and then place a bolt in the hole with a drilled metal plate inside the corner fitting (to act as a washer). You can then use mastic around the bolt to seal any gaps. Bolting them together is the easiest method but it certainly isn't as strong as welding them together. Also if you decided to bolt them together then you can disassemble them later on which you can't do if you welded them.

Welding Them Together

Welding containers together makes them much more secure and rigid, this helps to keep both the containers level. You need to weld the roofs of the container together in addition to any floors which overlap each other (see the example later on in the chapter). You can use 3" x 1/8" flat steel using a stitch pattern (a stitch weld is an intermittent weld; meaning you weld for a set length, skip another set length, then weld the set length again.) to secure the containers together.

Example

In the example we are looking at, the containers were delivered on a tilt flatbed trailer and simply slid off onto the concrete piers. The containers weren't welded down to the foundation because they felt this wasn't necessary.



Figure 8.3: Unloading Shipping Container



Figure 8.4: Unloading Shipping Container

Once the containers were lined up next to each other foam insulation was sprayed between the two containers. This helps to keep the moisture out and also helps to maintain the containers internal temperature through stopping any drafts.



Figure 8.5: Insulating Shipping Container

The containers were welded together instead of bolting them for the extra strength. The roof was welded with 3" x 1/8" flat steel using a stitch pattern with a 110 Volt wire feed welder.



Figure 8.6: Welding Shipping Container Roof



Figure 8.7: Welding Shipping Container Roof



Figure 8.8: Finished Welding Shipping Container Roof

In addition to help keep the container completely air tight, the end walls were also welded using 2" x 1/8" flat steel. This ensures no draft can get through the gaps and affect the internal temperature of the container.



Figure 8.9: Welding Ends Of Shipping Container

Inside the containers the floors were welded together to provide extra rigidity, using 2" x 1/8" flat steel.



Figure 8.10: Welding Shipping Container Floor

Once all the welding had been finished the steel was painted with latex paint to help prevent rusting.



Figure 8.11: Ventilation For The Foundation

Checklist

- Clean Your Containers Inside And Out
- Insulate the Base of Your Containers
- Site and Level Your Containers
- Connect Your Containers Together

Sample Chapter

Thank You

Once again, our thanks for checking out these two free sample chapters of the guide. If you're ready to step up your container knowledge even further, consider purchasing the full guide on our website.

Perhaps you're interested, but not fully convinced that a container home is for you. The guide is a great resource to help you more fully understand both the finished product and the work involved in creating it. We're not promising they're for everyone, but you can't make an informed decision without quality information.

If you already know you want a container home, but feel like you'd be better served having a contractor build it for you, the guide is still a worthwhile investment. Before you pay a company tens of thousands of dollars, you owe it to yourself to get smarter on the services they'll provide. Put yourself in a position of strength!

Finally, thank you once again for being part of the best online community for shipping container buildings and homes, DiscoverContainers.com!

