

Architectural Design

2017 Design Problem

Background

There appears to be a new focus across America of individuals choosing to seek out and select tiny houses as an alternative to more traditional choices. Many young people are opting for a streamlined and modest way of living. They don't want large yards to take care of, or large houses to maintain. There are many older adults who also are looking similar living accommodations – a result of changes in their lives and lifestyles.

Challenge (with design considerations and constraints)

The 2017 Architectural Design problem features the concept of “Tiny Houses” that can be built using modern shipping containers as the basic shell for a structure.

1. Conduct research on the concept of living small and tiny houses.
2. Determine and create a design that maximizes the use of limited available space for living.
3. Determine and incorporate effective and innovative storage concepts into the design.
4. The design must include a main living area, kitchen facilities, laundry facilities, a full bathroom, and one full bedroom.
5. The finished structure must be designed and built using a 40' (*external dimensional reference*) steel shipping container.
6. Only the height of the original shipping container may be altered (note: the finished structure must be able to be moved down a highway or rail tracks without disrupting overhead utility lines or other structures).
7. A picture and measurements of the specific shipping container to be used are provided below.
8. Shipping containers are designed and built for transport by rail, transfer truck, and trailers. The finished structure must be moveable by one of these options.
9. The design may include one appropriate-sized deck/porch that could serve as the main entrance or an outdoor entertainment area. This structure must be designed so that it can be disassembled (for transport) and reassembled. This structure is considered an accessory structure, because it could be built outside of the constraints of the shipping container.
10. A major component of the design is to meet LEED standards.
11. A 24" x 24" site board must be used for submitting the model.

Specifications	10' Container	20' Container	40' Container
Inside Cubic Capacity	15.4 m ³	33.2 m ³	67 m ³
Max Gross Weight	non payload	30,480 kg	30,480 kg
Tare Weight	1,500 kg	2,360 kg	3,980 kg

Dimensions	Length	Width	Height
10' External	3.10 m (10')	2.44 m (8')	2.59 m (8'6")
10' Internal	2.96 m	2.35 m	2.38 m
20' External	6.05 m (20')	2.44 m (8')	2.59 m (8'6")
20' Internal	5.90 m	2.35 m	2.38 m
40' External	12.19 m (40')	2.44 m (8')	2.59 m (8'6")
40' Internal	12.01 m	2.35 m	2.38 m
Door Size		2.34 m	2.26 m

