

Architectural Design 2017-2018

Design Problem

Background

The revolution seems to continue with the 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 for similar living accommodations – a result of changes in their lives and lifestyles.

Challenge (with design considerations and constraints)

The 2017 -2018 Architectural Design problem once again 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 tinyhouses. (Parade.com – Sunday, July 9, 2017)
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 half bath, a full bathroom, and two full bedrooms.
5. The finished structure must be designed and built using only two (2) 40' (*external dimensional reference*) steel shipping containers.
6. Only the height of the original shipping containers may be altered.
7. The use of bump-outs and bump-ups is encouraged during the design process.
8. A picture and measurements of the specific shipping container to be used are provided below.
9. 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.
10. 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.
11. A major component of the design is to apply and meet modern LEED design and building standards.
12. A 24" x 24" site board must be used for submitting the model.
13. An appropriate scale should be used.

| 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 | 3,960 kg |

| Dimensions | Length | Width | Height |
|--------------|---------------|-------------|---------------|
| 10' External | 3.10 m (10') | 2.44 m (8') | 2.59 m (8'6") |
| 10' Internal | 2.98 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 | 2.28 m |

