

Architectural Design

2018-2019 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. Additionally, a need exists for compact housing units that can serve as temporary as well as permanent structures to meet the needs of victims of tornadoes, floods, and other natural disasters.

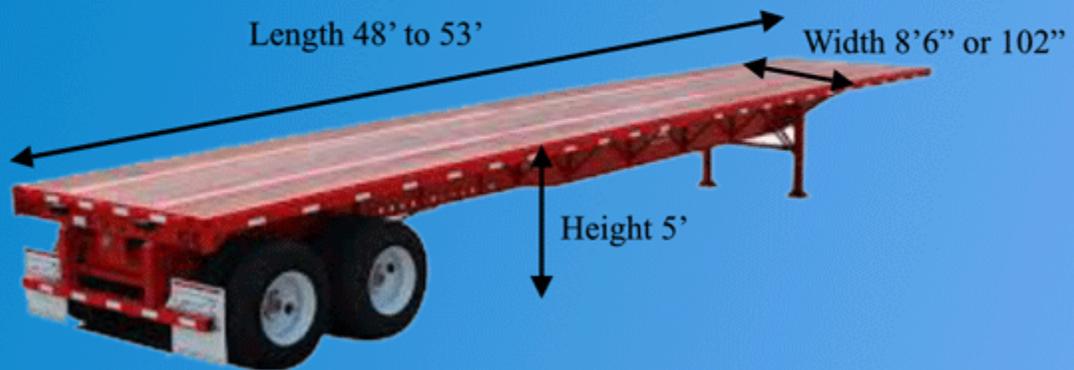
Challenge (with design considerations and constraints)

The 2019 -2020 Architectural Design problem once again features the concept of “Tiny Houses”, but with a new twist to the design solution. This year's design will focus on the concept of a “House in a Box.”

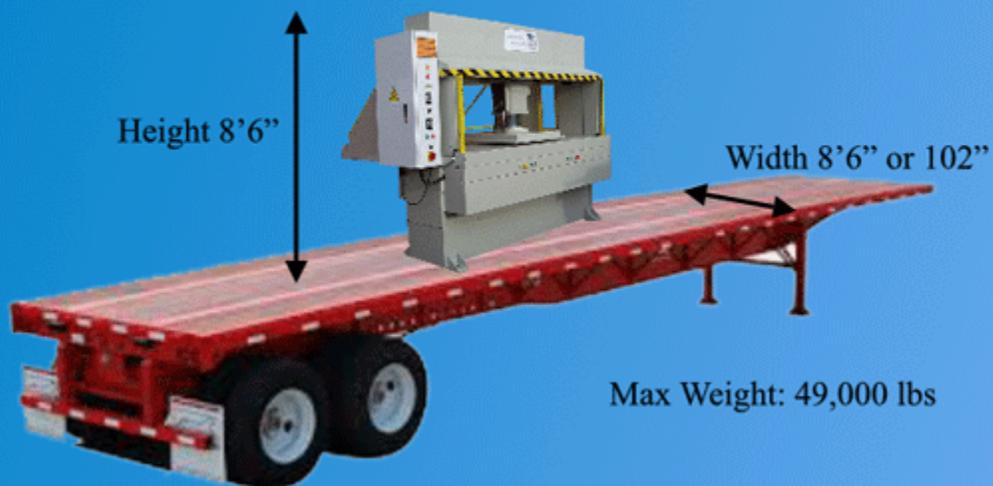
1. Conduct research on the concept of living small and tinyhouses.
2. Determine and create a design that maximizes the use of limited available space for living.
3. Determine and incorporate effective and innovative storage concepts into the design.
4. The design must include a main living area, kitchen facilities, laundry facilities, a full bathroom, and one defined sleeping area.
5. All basic construction systems should be defined in the design and instructions for their connection on site should be defined in the appropriate section of the portfolio.
6. The finished structure must be designed and fabricated so that it can be disassembled for packaging and shipping.
7. This design concept could be utilized for creating emergency housing units to accommodate displaced individuals following natural disasters.
8. The design should allow for the structure to be reassembled on a level surface (paved parking lot or graded gravel/aggregate surface) without the use of an additional footing/foundation structure.
9. Appliances and fixtures (commode, sink, tub/shower, etc. must be identified/designated by make/model and listed for packaging design and shipping/transport constraints.
10. The concept of “bigger is better” does not apply to this problem. Be sure to choose the items in #7 above wisely so that they have minimal effects upon space constraints.
11. The basic structure will be disassembled and packaged as one component.
12. The appliances and fixtures will be packaged as a separate component.
13. Pictures and measurements for standard flatbed trailers and flatbed rail cars are provided below.
14. You will note that 8'6” is the maximum width allowed and that measurement dictates

- the maximum width allowed for your design.
15. You are to determine the length of your design based upon the specific design requirements as stated as well as the cost effectiveness of being able to transport or ship multiple units together on the same carrier.
 16. A major component of the design is to apply and meet LEED standards.
 17. A 24" x 24" site board must be used for submitting the model.

Flatbed Trailer Dimensions



Flatbed Legal Commodity Dimensions



The maximum usable surface length for a standard 89' flatbed rail car is 80'

