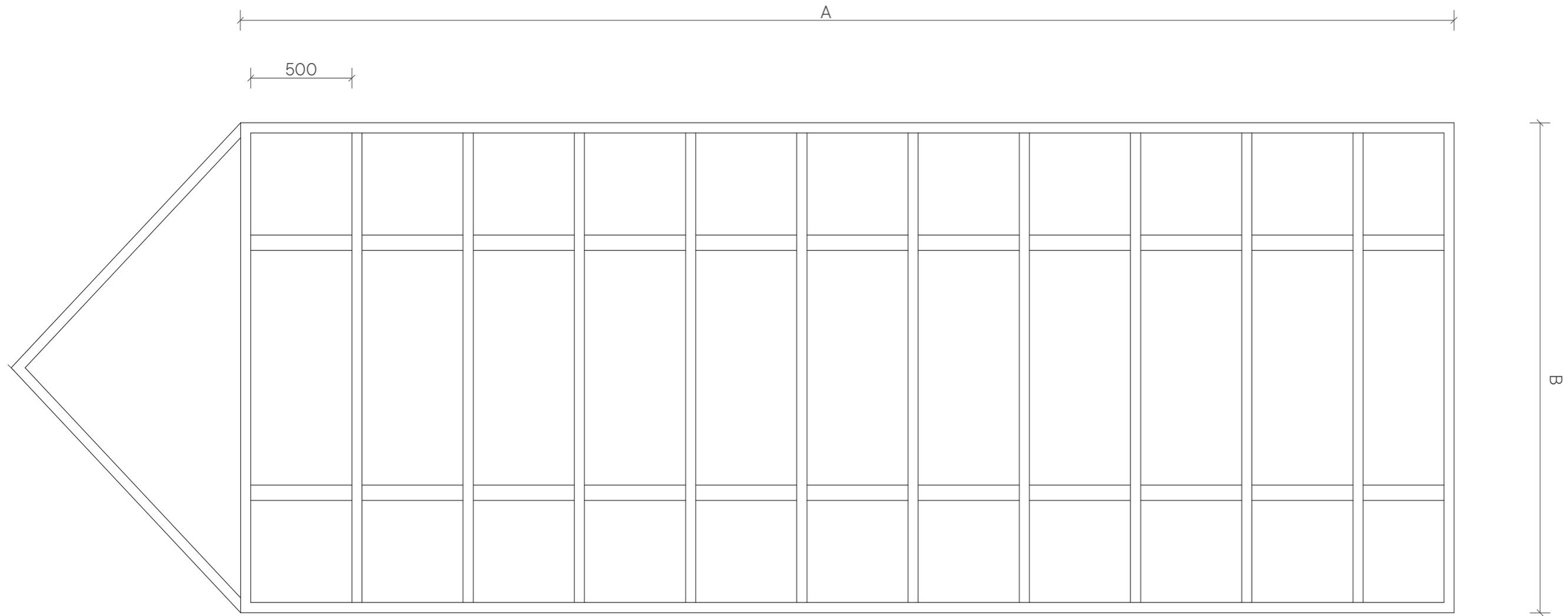


UBER TINY HOMES | 2021
TINY HOUSE TRAILER
DESIGN & CONSTRUCTION

TINY HOUSE TRAILER



A and B vary in size according to the Tiny House measurements.

Key points

To make the design

This document is to assist in the design and construction of a tiny house trailer.

The trailer is to be the foundation of the tiny house much like a caravan although as tiny houses are generally made from heavier construction materials the trailer must be more heavy duty.

We have built previous models before and come up with a simple reliable system that we will outline here.



1 HAVING A FLAT TRAY

having a flat tray means that we do not have to contend with wheel arches inside the house so generally we aim for this.

2 KEEP TRAILER HEIGHT AS LOW AS POSSIBLE

Generally we aim for 600mm (23.6 inch) from ground to top of trailer. We do this by using 13 inch wheels (540mm with tires) and having the wheels go into between the cross members allowing clearance to underside of floor (60mm top of crossmember). We actually build the trailer to 630mm and once loaded with build on top it sinks to 600mm.



3 TO INSULATE THE SUBFLOOR

We use a metal flashing or similar in between the crossmembers. There are multiple ways to do this , a easy way is to get the flashings folded to fit in between crossmembers and stitch welded or screwed through side of cross member.



WE DONT USE A BRACING SYSTEM UNDER CHASSIS

4

We move a lot of our houses using a super low loader as its the safest way and fully insured.

This means we don't want a big bracing system on the underside of the chassis.

As we can build our house to 4.1m high from the underside of the chassis to the top of the roof.

This is because the super low loader is 900mm from ground where the rear chassis goes over and are only licenced to 5m high.

So having a brace system would reduce build height.

What we recommend instead is to increase the wall thickness of the steel for the chassis or alternatively brace the chassis from the inside.

I generally do the latter and use 5mm thick 150mm x50mm steel for the chassis. Sometimes 200mm x50mm chassis is better but may bring your trailer height over 600mm.



TO HAVE TIE DOWN ANCHORS

5

Its also good to have tie down anchors for the super low loader to attach to and they can a be used with some tie down systems also. One at the back and one at the front of trailer on both sides is a minimum.



THERE IS USUALLY A WEIGHT LIMIT

6

Tiny houses are generally made to Rv standards so are classified as caravans. Depending on what country your from there is usually a weight limit that you can go to before having to build a commercial grade trailer. In Australia its 4.5 tonne so most people do not exceed that weight limit in order to save money. So generally all our trailers are made to a 4.5 tonne load limit.



TRIPLE AXLES ARE USUALLY NEEDED

7

CUT THE ANGLE TO THE REAR OF THE CHASSIS

8

BEST TO CONSULT THE DESIGN RULES OF YOUR RELEVANT AUTHORITY

9

Triple axles are usually needed for a 4.5t limit with 13inch wheels.

If you are building a smaller tiny house you may decide to use a tandem or even single axle and have a weight rating less than 4.5 tonne. Generally I would use tandem axles in a house up to 5.4m long and triple axles after that generally up to 8.4m long, any longer than that will be hard to keep under 4.5 tonne.

Having an angle cut to the rear of the chassis as a skid plate can be helpful.

Axle spacings are generally done with a 60/40 ratio with the 60 to the front so that the trailer has more weight into the tow ball.

Although there may be some other factors involved so best to consult the Australian design rules or your relevant authority.

**THE CROSSMEMBERS CAN VARY IN SIZE**

10

The crossmembers can vary in size but I generally use 75mmx50mm steel with 2mm thick wall or similar. The perimeter beam I use 100mmx50mm so that on the bottom it hangs below the 75mm crossmembers. I do this to help conceal the services like water pipes and electrical conduit that has to run under the trailer.





THE TOWBALL

11

The towball in Australia needs to be 70mm for a trailer over 3.5 tonne. So all our large trailer require this.

GUIDELINES TO FOLLOW

12

There is a set of guidelines one must follow in Australia to make a road worthy trailer the manufacturer should know them well. (Australian design rules) Depending on your country its highly probable you will have something similar.

Click [here](#) for more informations on Australian design regulations.

BREAKWAY SYSTEM

13

As per the rules above a breakaway system is required as well as a hand break, indicator lights, tow chain ect.



STANDS RELY ON A BOTTLE JACK TO ADJUST HEIGHT

14

For jacks to level the house when building and also living inside we use custom made stands. This is because previous stands that we have purchased all broke as they are designed for caravans not tiny homes. The stands we use rely on a bottle jack to adjust height and then a threaded rod and nut to lock it in. This makes it very easy to adjust height when needed and also conceals the stands as they are under the house.



TO TIE DOWN OF THE HOUSE FRAME**15**

We drill 12mm holes around the perimeter beam of the trailer at 500mm centres and 200mm in from each corner. This is for the tie down of the house frame down to the trailer where we use 10mm threaded rod.

**INDICATOR OR REFLECTOR LIGHT****16**

Any indicator light or reflector light needs to be dropped lower than the perimeter beam as the side of the beam will be covered with building material once built.

**MAKE SURE TRAILER IS STRAIGHT!****17**

It's very important that the trailer is a flat surface from end to end once jacked up and level. This is because when we are building on it we don't want a bowed floor which will bow our walls and ceiling also.

So be sure when the crossmembers are being welded to the chassis the chassis is perfectly straight.

If you want to hot dip galvanize the trailer then we suggest you weld cleats to the chassis and bolt the crossmembers on after dipping. This will allow you to adjust the crossmembers up and down to get a straight platform as hot dipping usually will create a bow in the chassis from end to end.

OVERIZE TINY HOUSE TRAILER**18**

Sometimes we build oversized tiny house trailers. The trailer assists in moving the house from location to location but it cannot be a registered vehicle.

For this reason we do not build these trailers the same as a rv standard trailer as we dont need to comply with Rv standards and its cheaper to leave off certain components.

Usually its the width that is being expanded that makes it oversized. But we keep the axles and chassis the same, we just make the crossmembers overhang longer. This is so that the house can still load onto the super low loader with axle spacing.

The components we leave off are:

- 1- suspension
- 2- breaks and breakaway system
- 3- indicator lights
- 4- handbrake.

By leaving out these components you will save a considerable amount and not affect the function of the trailer as it only get moved on roads via a super low loader.

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