

## Minim House Tour



Welcome to Minim House. Our philosophy is pretty simple:

- ◆ a contented life is largely independent from the size of one's dwelling
- ◆ we humans can and must live more sustainably, but not without style
- ◆ living in a small structure should never feel compromised- it should feel amazing
- ◆ excellent design has a role to play in spreading the acceptance of simple, affordable, green living

There have been many tiny houses built since the start of the movement. Many of those under 200 ft<sup>2</sup> just feel small. Visually, any features at eye height diminish the sense of space- walls, cabinets, lofts. So Minim House does away with these. Many small houses also rely on classical architectural proportions- attractive externally, but when scaled down result in small windows, narrow doors, less light. Using modern design allows for wide views and a spacious feeling. Minim House was designed to completely reimagine what a mobile micro home can be, adding livability, streamlining construction, modernizing aesthetics, increasing off-grid versatility, all while keeping costs in check.

Minim House is 11'x22', with 210 ft<sup>2</sup> of interior space. Of course at 11' wide, Minim House is a wide load. Since most houses spend less than 1% of the time moving, and 99% being lived in, we think it made sense to go a little wider for extra comfort. Since it is built on a trailer, and can be moved by any truck with 14,000 lb towing capacity. It can also unbolt from the trailer for foundation installation.

### Let's take a tour.

**Kitchen:** Here is a 10' galley kitchen, big enough for 2 cooks. A 7 cu foot NovaKool refrigerator/freezer that can run off of a/c or the 12v solar system. A 2 burner Dickinson range hides under the cutting board. For baking, the microwave also doubles as a convection oven. 3 standard stainless IKEA cabinets are used to minimize custom cabinet building. There are two shelves that hold a total of 60 mason jars of food. Under the counter, more storage, and a rack to keep drying dishes out of sight. The foot pedal controls the kitchen sink water- this is both convenient, more sanitary and greatly aids water conservation.

**Moveable table:** Off the shelf marine hardware was used to create a table that can rotate, pull up/down on a gas spring, and move around to 4 different metal sockets in the floor. Here is the dining table for 6. In front of that socket, the coffee table. Over here, extra kitchen space and dining for 2— or rotate 45 degrees for a bar. And here by the window, a desk overlooking a graveyard, for contemplating mortality.

**Stool:** This Cubista stool from Resource Furniture in NYC unpacks to 5 stools. Even when fully compacted there is room inside for two pillows. With the sofa, there is comfortable seating for 10 in the house.

**Sofa:** Seating for 5. To minimize off gassing common with synthetic materials, the sofa is custom made with organic cotton fabric and all natural latex foam. It also can double as an 8' guest bed. Underneath, the seat opens up to reveal a 40 gal water tank on the left, and water filtration system and lots of storage on the right side.

**A/V:** The large window array next to the door is conveniently sized in 9:16 proportion, and the shade hanging above it doubles as a projection screen. A small LED projector sits on the sofa and is wired to the computer at the desk. Stereo speakers on either side of the window complete the home theater.

**Bed:** Most micro houses have climb-up lofts near the roof. This is ok if you are young, don't drink much, can handle rain noise, and don't get too creative during sexy time. Minim House has a roll out full or queen size bed. It rolls out, locks in place, rolls back. Two pillows store in the cube. It's easy to make/unmake. And with a 6" natural latex foam mattress, super comfortable, without any toxic off gassing. Two all wool blankets from Faribault Woolen Mills provide high degree of warmth with a low profile. The bed can also be pulled out partway and locked, creating additional padded seating for 3.

**Office:** The 5'x7' office/storage area sits atop the bed platform. It seemed important to have desk space that doesn't double as the kitchen table. So in the office we have a 5' long desk, with additional wraparound countertop. A full sized piano keyboard hides underneath the desk (lift carefully!). A printer/scanner/copier in the closet connects wirelessly to the laptop.

**Closet:** Behind the office is a 5' long closet. We've tried it out- it can fit 15 dress shirts, 10 t-shirts, 12 pairs of socks, two coats, two suits, 21 ties, 6 sweaters, 7 pairs of shoes, a wetsuit, and guitar bag. And a suitcase, large backpack full of camping gear, a 10 tray food dehydrator, a toolbox, a printer, vacuum, 3 kites, 4 bike panniers, a BBQ grill, and the battery bank, inverter, and charger that allow the house to be off grid. There is still some room to spare.

**Bathroom:** The bathroom is a wet bath arrangement, with showerhead over the sink area, with a custom stainless steel enclosure. The incinerator toilet is tucked in and screened off with a shower curtain when the water is spraying — a compost or standard toilet may also be used. Next to the toilet is an electric Ariston 4 gal hot water tank. It can run off the solar system, since it is just turned on for 10 minutes before shower time. It easily gives a 10 minute hot shower. The bath uses a standard IKEA sink, and has a standard remote controlled RV fan for ventilation. The bath may be extended longer if desired by eliminating one of the bookcases. There is also a brass porthole to keep a lookout for pirates.

**Bookcase 1+2:** Here is the library. Plenty of shelves on two bookcases for 150+ books. Here is the sewing room. Here is the bar. Here is a the portrait gallery. Mom and Dad sure looked like hippies.

**Finishes:** Flooring, desk, table and counters are all made of solid walnut from a local planing mill, finished with a zero-VOC food grade oil finish. Walls are finished with a zero-VOC paint.

### **Let's talk utilities:**

**Electric:** Minim House has a 960 watt solar array which feeds an Outback charge controller, 12 volt battery bank, and an Outback charger/inverter. With this system the LED lights, refrigerator/freezer, water pumps, keyboard, printer/copier, notebook computer, sewing machine, microwave, blender, bread machine, speakers, stereo, and LCD projector can run sustainably off the solar system. Note the solar array + battery bank are not large enough to power the incinerating toilet, the a/c at night, or the electric convection oven reliably. The house can easily hook up to the grid when needed with a standard 15 amp extension cord (no large 30 or 50 amp RV cord needed).

**Heating:** A marine Dickinson propane heater provides a lovely hearth with yellow flame. It uses a double chamber vent, which both brings in makeup air from outside and vents the exhaust. When connected to the grid, Minim House has a flat panel 'eco-heat' wall heater on the closet next to the bath that draws just 200 watts but keeps interior temperatures up well.

**Cooling:** many small homes have unsightly mini-split a/c units or window a/c units. Minim House uses a through-the-wall a/c unit, built into the office cabinets. There is nothing visible on the outside of the house except an architectural grade vent plate. When the sun is out, the a/c unit can run off the solar system without depleting the batteries.

**Water:** Most tiny houses require a pressurized water hookup, which limits where the house can live. Minim House has a self sustaining rainwater catchment and treatment system- no water hookups, no problem. When rain falls it is collected into an invisible roof gutter, and is gravity fed to a 250 gallon flexible cistern under the trailer bed. A small RV pump in the hitch is then used to fill the 40 gal on-board water tank under the sofa. Water is pumped through a 3 stage Doulton filtration system (sediment, carbon, and ceramic), which makes it completely potable. With an average rainfall of 3"/month in DC, approximately 500 gallons of water can be collected from the rooftop. With the most efficient low flow shower and faucets on the market, water use for showers and sinks is about 30-40 gallons/week.

**Lighting:** Minim house uses all LED lighting. Inside, there is dimmable strip LED lighting above the back windows and under the counters. The 4 spotlights in the house are 10w dimmable waterproof exterior soft white LED fixtures. All components are easily sourced online.

### **Let's discuss construction:**

**Trailer:** The house is built on a 14,000 GVWR standard 8'6" wide landscape trailer from Kaufman trailers in NC.

**Framing:** Minim House is built with SIPs (structural insulated panels). SIPs are pre-built construction blocks made like a sandwich- OSB plywood on the outside, insulation on the inside. Building with SIPs have many advantages. First, it's easier and quicker to construct an insulated shell, just connect the blocks together. Second, the walls have double the insulation value of traditional stick built homes, and leak much less air. Walls here are R-26, R-40 in the roof, R-30 in the floor.

**Finishing:** Minim house also simplifies construction by only having 3 windows and 1 door to install. Most exciting, once door/windows are installed there is *no* trim work on exterior or interior- siding just butts up against the window frame on both inside and out. The exterior is finished in cypress, which has a natural preservative (cypresseen), so there is never any future wood treatments. It naturally ages to a light grey.

If you'd like to build this house yourself, fully detailed Minim House plans+construction guide are available at the website below. Basic materials costs are around \$31K, and the required SIPs panels can be made/shipped anywhere. Element Design+Build can also build a house for you. Prices range from \$55-75K, depending on features and finish. It can also be foundation built. Thanks for visiting!

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