



Windsor 500

**One Bedroom, One Bath: 500 s.f. (46.5 m2)
26' x 19' (8.0m x 5.8m) including roof overhangs**

Features:

- First Floor Area: 288 s.f. (26.8 m2)
- Attic: 212 s.f. via alternating tread stairs
- Solar panel-friendly, **passive solar**
- Two possible frontages
- 3½ season porch (screened in summer and clear PVC in winter)
- Galley Kitchen
- Space-saving bathroom with roomy shower
- Compact washer or combo washer/drier
- Thermal mass slab construction
- Radiant floor heat**, window AC cooling
- \$40 average monthly energy bills (Maryland)
- This flyer shows hybrid Light Straw Clay walls and **Natural Home** construction



Overview:

Welcome to my home! I designed and built this simple cottage as the first structure on a vacant lot in Centerville, Maryland. The idea is that it is the smallest amount of space that I could live in for years at a time before building a larger (but still compact) primary house. It also served as practice for me to get comfortable with various natural building techniques. Once I move into the main house, this is intended to be repurposed into a guest house, home office or music studio. After eight years of full-time living, I haven't outgrown the space!



Not-So-Tiny Compact Living:

The house suits my lifestyle even better than I expected when I designed it, balancing the convenience and minimal maintenance of a tiny house with a space that accommodates store-bought furniture rather than custom built-ins. I have room for everything I use on a day-to-day basis, and I can lean on my garage for additional clothes storage and large toys like kayaks, bikes, and woodworking tools.

Compactness breeds simplicity, which leads to time flexibility. Regular chores like vacuuming and dusting take a grand total of 30 minutes plus a couple more to clean the bathroom. That short time commitment leaves plenty of opportunities for more fulfilling activities. Besides, I love the fact that the small space means that everything I need is close at hand--I can even reach into the fridge while seated at the dining table!



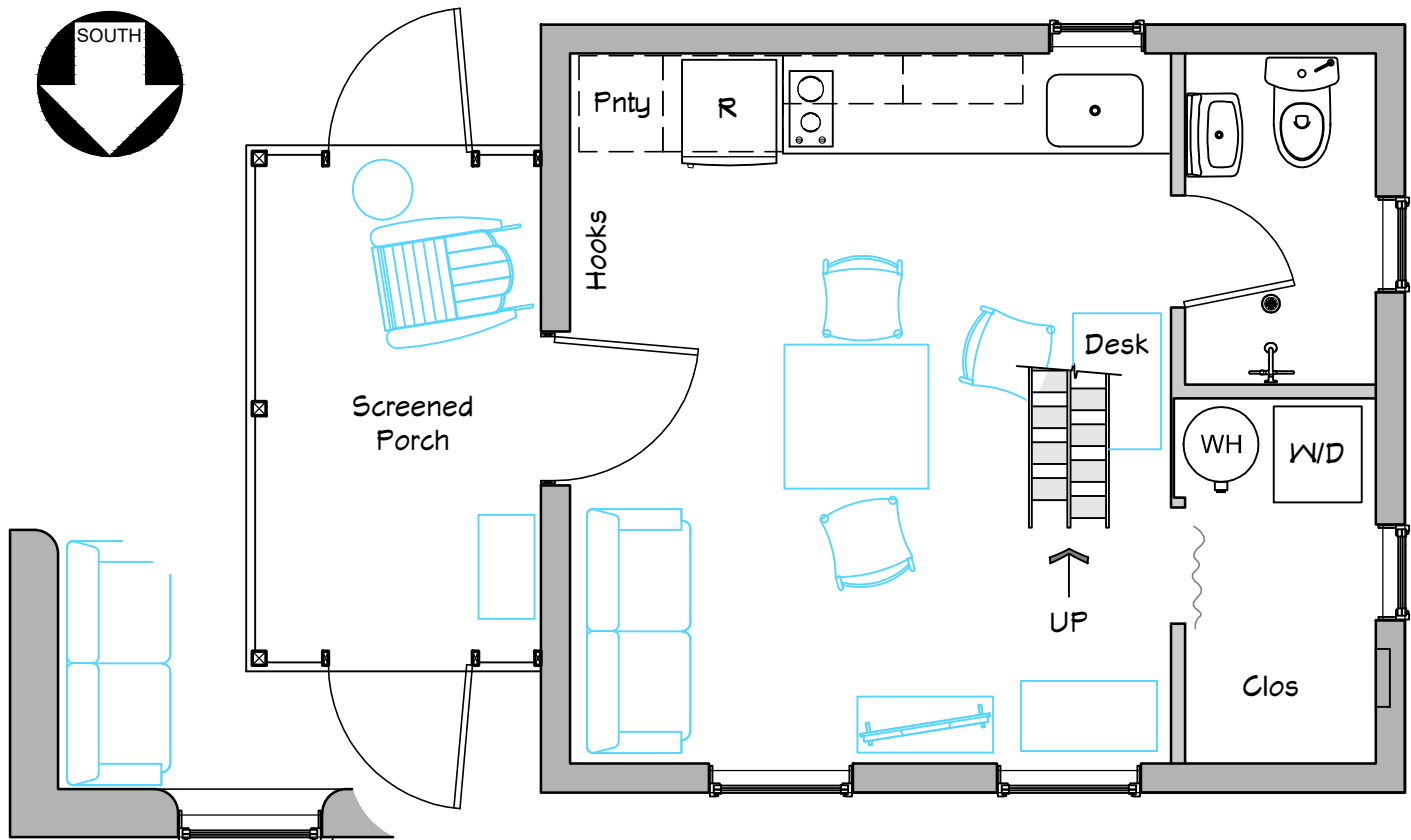
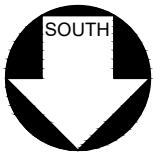
Windsor 500

About the plan:

Layout options are limited in a 288 sf floor plan. In order to make the room feel as large as possible, I've arranged the kitchen galley-style along the north wall where there are few windows, and the cabinets can buffer cold winter temperatures.



A narrow bath and closet take up the east wall. The remaining "great room" measures 14' x 11' and offers a modicum of flexibility in furniture arrangement. Combined with an 8' ceiling, it achieves a degree of spaciousness that just isn't possible with a tiny house on wheels. My 10' x 6' porch provides some variety in seating and eating, and it acts sort of like a mud room, which adds to the capability and variety of the amenities in the conditioned living space. The porch could easily be expanded to 10' x 10' for those who embrace outdoor living or who reside in a climate more amenable to time spent outside.



FIRST FLOOR PLAN

For comparison, these are the 12" thick walls in my natural house



Scale: 1/4" = 1'-0"

Windsor 500



About the attic:

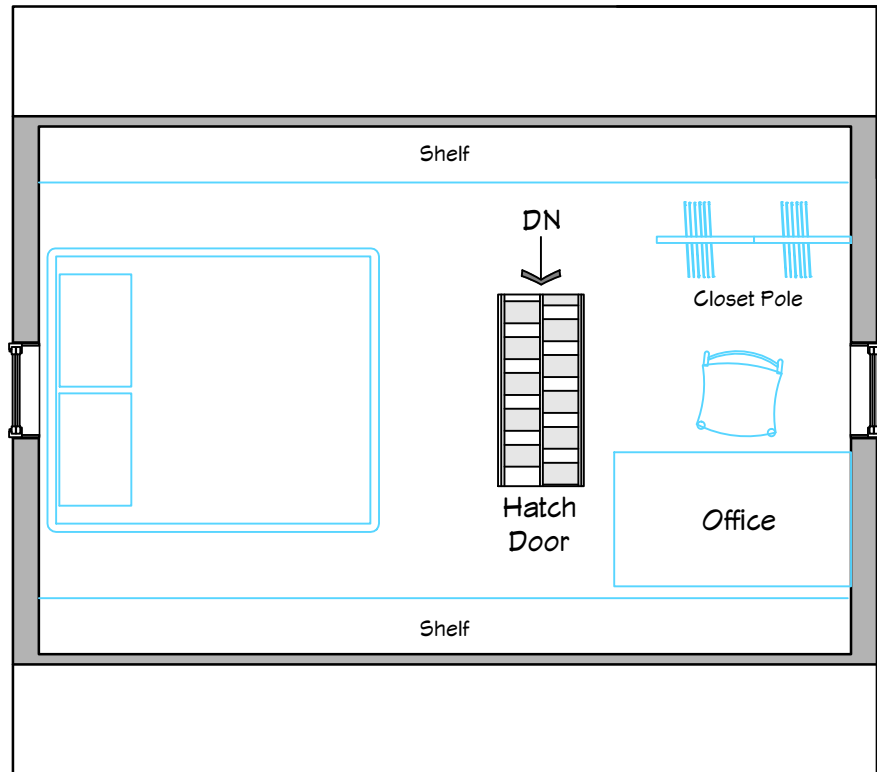
I started off calling this my sleeping loft, but the technical term for this is a habitable attic. Lofts are open to the first floor on at least one wall, and this one is only accessible by a small hatch. The hatch is important because it acts to isolate sound and temperature. With only a 3/4" plywood swinging door, there is adequate sound isolation to keep the peace for a late sleeper while I'm bustling around downstairs on a weekend morning. The hatch is also adequate to maintain a 10-degree temperature difference in the winter since I like a cooler sleeping space and warmer living space. I have no heat source in the attic--body heat is plenty to keep me warm, even with the window cracked, until outside temps fall below 20 degrees (-7 C). I can always open the hatch to let the downstairs heat rise up if needed.



Since my house is not well shaded, I need a window air conditioner to knock temps down during hot humid Mid-Atlantic summer nights. I leave the hatch open during the day to allow the AC to cool and dehumidify downstairs since cold air sinks. It doesn't take much, so I don't need a first-floor AC unit.

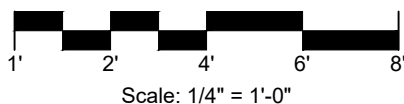
Alternating Tread Stairs:

I'd never used one of these before I built the stairs in the picture. This has been hugely successful considering that I probably make 5 or so round trips to the attic on an average day. With a little care, it's possible to go up and down the stairs hands-free, which is not possible with a conventional ladder. While it takes up more space than a simple ladder, it is actually code compliant in this house and way more space-efficient compared to conventional stairs. Check out my YouTube video!



SECOND FLOOR PLAN

See my construction blog on the "My Home" tab of compacthomeplans.com



Windsor 500



Built-ins:

With only two interior walls on the first floor, it was fun to try to utilize the stud cavities as much as possible by limiting the finished surface to just one side of the wall. Using tongue and groove pine or stained plywood leaves a finished (or paintable) side on both the outside and inside of the studs. Here is what I came up with:

- CD shelves
- Shelves above doors
- Medicine Cabinet
- Expanded utility room

*Check out our
YouTube Channel!
@compacthomeplans*



Bathroom:

My bath is compact but still fully functional. The shower uses all the available floor space (36" x 39"), so I chose to squeegee the water up when I finish. Another option would be to lay down a dry grate after taking a shower so you can walk around with dry feet. The toilet has a hand-washing basin in the tank, which is plumbed with warm water to meet code. In practice, I use the kitchen sink, which is right outside the bathroom door, more than the toilet sink. With commodious shelves above the toilet and a large medicine cabinet, there is plenty of room for towels and supplies even without a dedicated linen closet.



Porch:

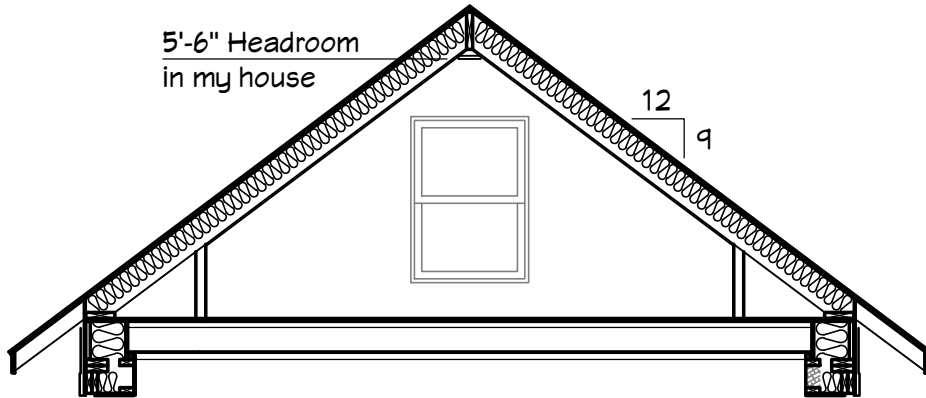
The west-facing porch is screened in summer, and provides shade from the low afternoon sun. In winter, I enclose the long wall with clear vinyl panels to create a greenhouse-like space with brick flooring to soak up the heat from the afternoon sun. I call it a 3.5 season porch since it is usable year round. It's just not pleasant on cloudy days in winter, but any sunny day warms it right up into the 60s or 70s. I can even blow the warmed air from the porch into the house for a little free heat! By incorporating two retractable screen storm doors on the north and south walls, I can control the amount of ventilation in the porch during the swing seasons.



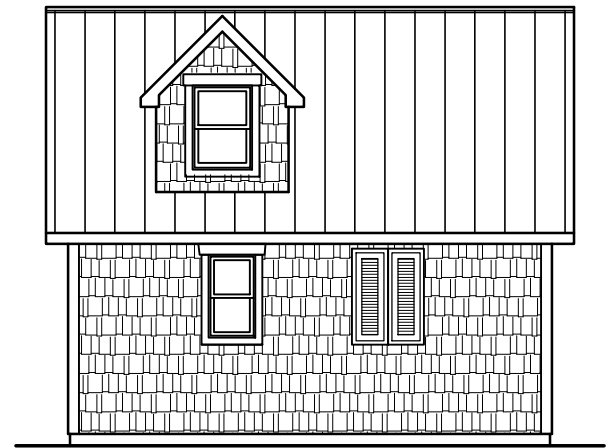
Utility Closet:

The plumbing side of the closet contains the domestic and floor water heaters on a shelf. Below is the compact washer. Admittedly, there is no room for a separate dryer, but I air-dry my laundry on the porch, because that's my preference. Anyone who wants a dryer could buy one of the combined washer/dryer units for sale these days. On the other side of the closet, I am able to fit most of the clothes that I use on a day-to-day basis, supplemented by a wooden chest just outside the curtain.

Windsor 500



**OPTIONAL
9:12 PITCH ROOF**



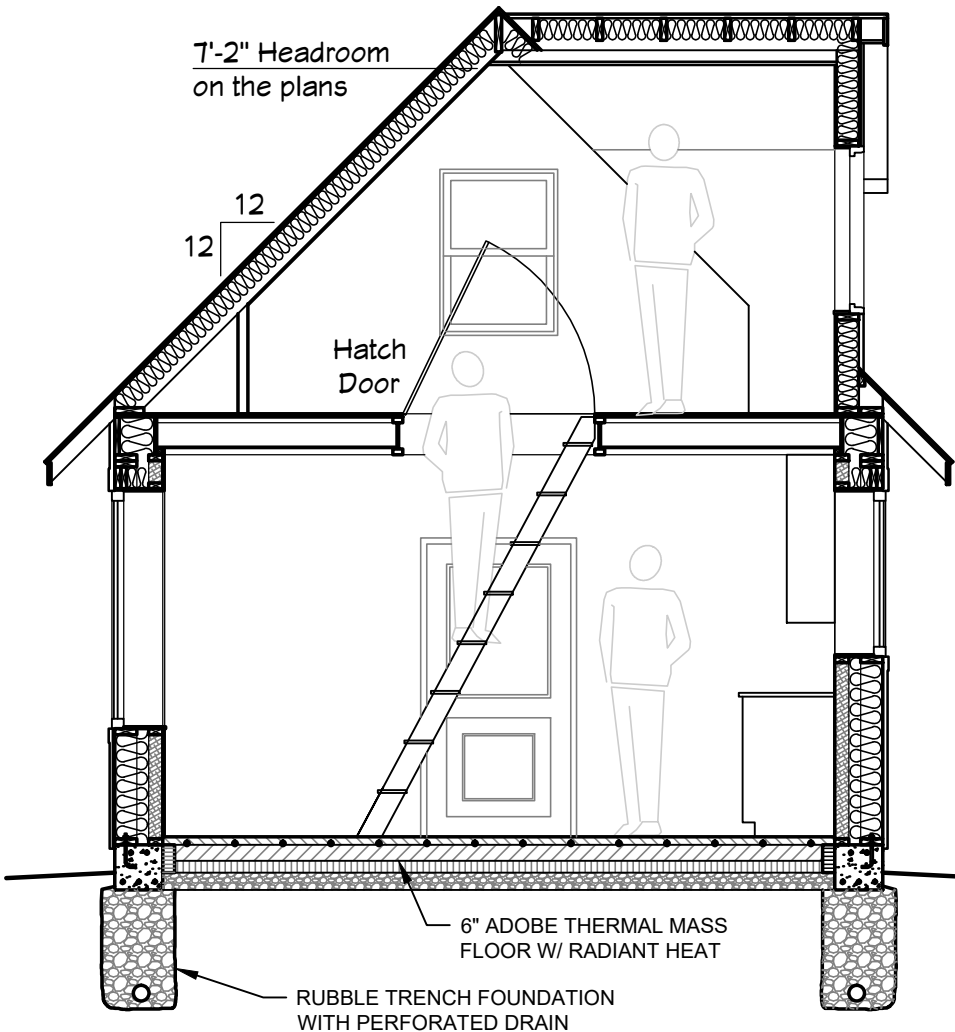
**DORMER AT
TOP OF STAIRS**

SCALE: 3/16" = 1'-0"



Attic Dormer:

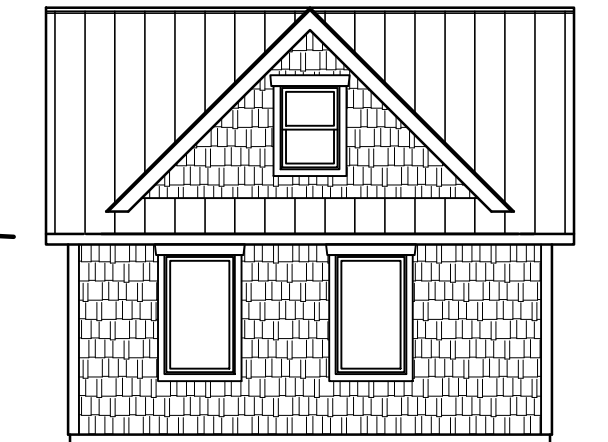
Designing my house, I chose to make the attic purposely less enticing for building code reasons. For the Windsor 500 plans, I added a generous gable dormer at the top of the stairs to give standing headroom, as shown in the image above. (FYI, those dudes are 6'-2" tall.) This, in combination with the lower-sloped alternating tread staircase, make going up and down much easier. And bringing more light to the interior of the space also makes it a more appealing room.



BUILDING SECTION



Scale: 1/4" = 1'-0"



**SOUTH-SIDE
DORMER OPTION**

SCALE: 3/16" = 1'-0"

Windsor 500



Light Straw Clay:

The first floor walls are 12" thick, with the interior 2x4 stud cavity filled with Light Straw Clay (LSC) and the remaining thickness with blown-in cellulose. The LSC provides some insulation, more thermal mass, and most importantly acts as a substrate for the clay plaster. Cellulose insulation is an affordable DIY option that does a significantly better job of completely filling the stud cavities than traditional batts. Air infiltration is the enemy of energy efficiency, and a dense-packed cellulose insulation wall will outperform just about anything except spray foam (which is not a natural material).

Adobe Floor & Radiant Heat:

If you liked playing in the mud as a kid (or as an adult), you'll really dig building an adobe floor! It's a fun, tactile experience and a good workout. Mine is 6" deep in three layers, with PEX tubing embedded to make a radiant floor. Once the surface is sealed with a penetrating oil (I used tung oil), the surface is solid, dust-free, and spilled liquids do not soak in.



Clay Plaster:

Clay plaster is a great way to ensure a healthy interior. There are no nasty chemicals or allergens, it modulates humidity (made more effective by the LSC substrate), and adds to the thermal mass of the interior, which modulates temperature. Most importantly, LSC and Clay are water permeable, so moisture will not build up in the wall or allow mold to grow.

My walls have a 1/2" thick base of local plaster plus two skim coats of pigmented plaster as sold by American Clay.



Lime Plaster:

Unfortunately, clay plaster is not robust enough to stand up to seriously wet conditions. Hence the backsplash behind my kitchen counter and lime plaster in the bathroom. Lime can also be used as exterior plaster because of its weather-resistance and durability. I used pigment on the walls with straight lime plaster on the floor, and once it is polished with olive soap, water beads up and runs off. Best part--it is extremely basic (opposite of acidic) so mold and mildew do not grow on it like they do on tile grout!