Fast and simple temporary housing

by Andrew Eriksen

People with MCS and/or electrical sensitivity sometimes need temporary housing to handle a housing crisis, to live in during construction of a permanent home, or as a place to sleep while spending the day in a nearly-good-enough house.

Most people first think of travel trailers and tents when temporary housing is mentioned, but they are both difficult for people with MCS. Both are very toxic for several years when new, and later they almost always become moldy — even in a desert.

Some people have had better luck using small steel sheds.

Steel sheds can be bought as a kit and erected in a couple of days. With offgassing and foundation, a usable shelter may be available in as little as a few weeks, at a cost of around $1,000.

There are no amenities, it’s cold in the winter and hot in the summer, but it is cheap, fast and has worked for a number of people. If you adjust your expectations and think this through, it may work for your situation.
Where to put it

It is best to put up a shed near where there is a bathroom, electricity and water. Perhaps in the back yard, so you can use the facilities in a house.

It can also be placed next to a cheap moldy old travel trailer, that is used as the bathroom. Or a second shed can be erected as a bathroom, perhaps with a simple shower stall and a dry toilet. Some use a portable commode (sometimes called a “hassock toilet”) sold in camping stores. A simple five-gallon bucket can be used, with a toilet seat fitted on. A bedpan can also work. A composting toilet may also be acceptable, but it must still have its own shed. An outhouse is another entirely practical method, which is still legal in some very rural counties.

Water can be trucked in using PVC tanks available from rural hardware stores and farm suppliers. Just don’t drink this water.

If you only need electricity for lighting, it can be supplied by a solar panel. There are many options.

In warm climates, some sort of nearby shade (tree, ramada, carport, etc.) is very important. Steel sheds become very hot in the sun.

If you build on someone else’s property, they will own the shed when you move again. It is theirs, you cannot sell it to anyone else, nor expect the landlord to pay anything for it.

Building a portable structure is much more complicated and costly. It is not realistic to disassemble or move a kit shed and put it up somewhere else. They will most likely be very damaged.

Choosing a kit shed

There are a number of steel kits available from Home Depot and other vendors. Be aware that they are cheaply made. They have their limitations. The steel roof and sides are very thin, the doors are cheap and the shed will need to be caulked to really keep out the rain. These kits also tend to be very low, so an adult cannot stand upright inside. Make sure to get a model that has a high enough ceiling.

Most counties in the United States do not require a building permit for a structure up to 10 ft by 14 ft, so there is usually such a size shed available. A smaller size may work fine, too.
There are also a variety of pre-made and kit models of manufactured wood (such as OSB boards). These will not work. It is not possible to seal the boards well enough to prevent any offgasing. Not by using any sealer, not by using aluminum foil or Tu-Tuff. They will not be tight enough, especially for such a small airspace.

Please do not get side-tracked by how attractive some of these wood sheds are. If you can’t sleep in it, you can’t sleep in it.

**Choosing a caulk**

You will need to caulk the shed, even if the manufacturer says it is not needed. They do not expect people to live in these sheds.

You must start choosing the caulk right away, before starting on the shed. It will take weeks to test which caulk works the best. It varies with the person which one will work best. Do not assume what works for your best friend will work for you. You will have to do your own homework here.

It is not a good idea to wait until later to see if you need to caulk or not, because it takes weeks to offgas fresh caulk.

To test what works for you, buy a set of one-liter canning jars and wash them so they do not have a smell of their own. Then buy a sample of each type of “100% silicone” caulk available. Perhaps also get a sample of the Phenoseal brand.

Smear the caulk all over the insides of each jar, both sides and bottom. As much as possible, to create a large surface. Write the date and brand on each jar, and let them sit without a lid on for a week.

After a week, carefully smell each jar. Try once a week, until one is tolerable.

**The foundation**

It is best to make a concrete slab and then bolt the shed unto it. A handyman can make a slab in a day by setting up a frame of 2-by-4 pieces of lumber directly on the ground, or on a bed of gravel. Then the concrete can be made up in batches in a rented cement mixer, or a concrete company can deliver a load of ready-mix. Using a concrete company is much easier, but they will charge extra for a small load.

It is best to make cement mixes without any additives, such as fly ash, freeze protectants, accelerants, etc. If you do use a concrete with additives, the concrete
may smell for years, especially in humid climates and when it rains. If it is mixed without additives, it cannot be poured in freezing weather, and it may need to be covered by a tarp for three days so it does not dry out too fast while it cures.

Make the pad so there is a small porch in front of the door. Perhaps four feet (1-1/2 meter) or so. It will be very useful to sit on, store things on, and to catch dirt and mud.

It usually works well to seal the concrete floor with sodium silicate (from a chemical supply house) or the AFM Grout Sealer (which is basically sodium silicate). This can help if there is a problem with concrete odors.

The shed can be erected without a foundation, or with just a row of concrete blocks under the walls. This is no as good as a slab foundation. It will get wet and moldy, insects can more easily come in and the shed is not well anchored for high winds.

In a hot desert climate, one person built a raised wooden platform instead. This raised the shed above the many desert critters and provided ventilation from underneath. This may not work well in other climates, as the wood must be treated against mold and fungus and the extra ventilation may be undesirable. Some types of wood do not need treatment, such as redwood, but redwood is very aromatic and may not be tolerated.

A simpler method is to place the shed on a raised bed of gravel. Perhaps with a row of concrete blocks around the perimeter. Most (perhaps all) of the kit sheds have no flooring, and a typical plywood floor will not work. There are many problems with them, such as the wood itself, the various chemicals used, rot, mold, etc. Instead, a floor can be made of concrete pavers or blocks laid on their sides. Perhaps put a plastic tarp (such as Tu-Tuff) on the ground first, to block moisture coming up from below (wicking).

Using a gravel bed as a foundation is not as good as a concrete slab. There can be more problems anchoring the shed, wicking the moisture, mold, insects, etc. But it is cheaper and can later be removed.

**Erecting the shed**

Check the weather forecast to make sure it is not a windy day. The large, light pieces are very difficult, perhaps dangerous, to handle while windy. It is best to have two people to erect the shed. Perhaps enlist a handyman and a helper to hold the large pieces. It should only take about two days to put it up.
Some people choose to wash all metal pieces in hot water (perhaps with a little dish soap) to remove any oils left from manufacturing. This is best done before mounting the pieces.

The walls are bolted unto the foundation using expansion bolts into drilled holes. You’ll need a drill powerful enough to drill in concrete.

**Important details**

If the shed is located in a windy area, it is essential to brace the flimsy side walls. Otherwise you will be worry. The walls have collapsed on people who didn’t do this. It is easy to install a length of horizontal 2-by-4 lumber along each wall.

If the shed is in an area that sees a lot of snow, the roof must be braced. Perhaps with some 2-by-4 lumber or extra steel beams.

**Caulking**

These sheds are not fully waterproof. Some models come with some rolls of special tape to cover the seams, but it does not work well enough. It will need caulk to get tight against drips.

If the slab is wider than the shed, you will need to caulk around the perimeter of the walls, so water does not run in under the walls.

It is better to put too much caulk on up front, or you may need to add more later, which could make the shed unusable for weeks or months.

**Insulation**

The standard insulation that is most used by people with MCS is Reflectix or Astro Foil. They are identical, except Astro Foil seems more sturdy. They are available from some hardware stores, RV stores and building supply stores. Astro Foil can also be mail ordered.

Both products are essentially plastic bubble wrap encased in Mylar. Mylar is 99% aluminum.

The insulation value is not great, but several layers can be used to make it better. The material is very easy to work with and can be mounted with aluminum tape, clamps or screws. Some people have covered the edges with aluminum tape to seal off the exposed plastic.
Another option is to buy sheets of polyisocyanurate boards, which is a type of foam board that is usually encased in aluminum and seems quite inert. They have a very good insulation value, even better than fiberglass. Some building supply stores carry them. They sometimes know them as “blue boards”. These boards can be cut to fit between the studs in the walls and wedged into the ceiling, perhaps resting on metal screws that are not screwed all the way in.

Styrofoam boards may also be usable here. No other insulation material appears usable, including formaldehyde-free fiberglass.

**Heating and cooling**

This is a difficult issue. If you are highly electrically sensitive, there may not be any realistic way to heat and cool such a shed. People have gone without such comforts by spending hot summer days under a shade tree and winters inside a good sleeping bag with a gallon-sized bottle (or several Mason jars) of hot water. We tend to become more flexible with these things once away from the perfectly heated and air conditioned home. Lots of people with MCS have done it.

The electrical heaters most people do well with are the SoftHeat line from Cadet. These have the heating elements encased in copper tubes with water and antifreeze. This is intended to provide more even heat, but it also dramatically lowers the EMF radiation, and there are lower temperatures on exposed parts so there is less of a problem with fried dust, but the fins must be thoroughly cleaned at the start of each heating season. Dozens of MCS homes happily use these heaters.

A much more expensive alternative are ceramic heaters, which are available from stores catering to people with MCS. Another option is the infra-red heaters, of the type with a glowing tube.

There are direct-vent sealed combustion gas heaters available, but they are not perfect, and may not be tolerated. It is dubious that the seal can really hold up to the extreme temperature changes it is subjected to and there will also be some very hot metal pieces that could cause odor problems.

A few people have successfully used small wood stoves, but that is definitely not for everyone. Some smoke will always leak into the room, especially when loading the stove with wood and cleaning out the ashes. Some stoves require electricity to run, especially pellet stoves.

For cooling, there are small swamp coolers available, even 12 volt versions. These only work well in dry climates, such as the Southwest USA. The problem
with swamp coolers is that the evaporation pads tend to be treated with herbicides to prevent mold growth. People have found untreated pads and then made sure to thoroughly dry the pads daily. Some models are now painted with herbicide paint.

Swamp coolers also create high humidity inside, which is conducive to mold growth in the room. The electrical motor can also be a problem, both the EMF and the fumes from the hot parts.

Window air conditioners are very smelly when new, and it takes a long time to offgas one. Some are treated with herbicides. The noise and the EMF are also common problems.

**Steel and EMF**

Steel and other metals reflect electromagnetic radiation, such as from electric space heaters, cell phones and transmission towers. This has unfortunately made some people decide not to use metals. It is not that simple, many people with MCS and EHS live fine in steel houses with steel walls and roofs.

It is a common myth that steel somehow attracts EMF. It doesn’t. It is true that when placing a radio or gaussmeter very close to steel, they may show stronger signals, but that is because the metal enhances the antenna in the radio or meter. It is like using your hands around your ears to hear better. The sound level around your head does not change at all, it is just your own antenna (your ears) that are better at receiving.

Building with steel has its benefits and drawbacks. It blocks radiation from cell towers and other electropollution from the outside, but it also keeps radiation from exiting a steel building. For better results, consider the following guidelines:

- The floor should not be of any metal, as it blocks the earth’s beneficial field. The floor is also a practical way for EMF from inside the house to exit. Floors are usually tiled, anyway.

- Cell phones should never be used inside a steel house. They will have to send out a stronger signal to penetrate the walls, and most of this signal passes through your head. If a cell phone must be used inside, at least get an external antenna to plug into the phone, and place it outside. These are cheap and available from many places that sell cell phones.

- Because EMF bounces on the metal walls, electronics will be more bothersome inside, especially in small rooms.
It is essential that any electrical wires in a steel building are not in contact with the walls. This includes the grounding wire and any steel conduit. Otherwise stray voltage can cause a lot of problems.