

SIMPLE DIY HOME BUNKER



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The future is the biggest uncertainty in life. To truly be prepared for whatever comes, you need to have back-up plans. At Patriot Liberation we pride ourselves on giving sound and practical advice that anyone can use to improve their chances in a disaster.

Whether it's a natural or a man-made catastrophe, only people with a plan stand a chance at making it through tough times ahead. Stockpiling food and water are a great start, but what if you are ready to take it up a notch?

The best defense you can have on your property is an underground bunker. There's a reason so many were constructed by the military during the cold war. Underground bunkers are able to withstand the toughest assaults and attacks, whether it's from your fellow man or the full force of nature. This guide will outline everything you need to know about underground bunkers, and walk you through the steps to construct your own on your property.



To DIY or not to DIY?



There are many companies offering great packages for underground bunkers. They have many advantages as they are quick to install, carefully engineered and durable in all conditions. You will have a professional team come to your property, excavate and set-up your bunker within a matter of days. Ideal if you want to get it installed while your nosey neighbors are out of town.

The downside comes with the price tag. It's very expensive to have a professionally fitted underground bunker, ranging from basic models starting from \$30,000 to more complete bunkers at \$70,000+. If you have the money to spend it's a great investment in your families safety, however many of us don't have the budget for such an expensive prep.



Building it yourself requires time, effort and a huge amount of hard labor. However the benefits are a significant cost saving, as well as increased operational security (OPSEC). There's a reason that every government organization has different levels of information access. The more people who know your secrets, the higher chance your neighbors are going to come knocking on your bunker door in an emergency. Having cranes, bobcats and a huge team of professional's install a bunker on your property will certainly be noticed. Not to mention that every contractor on your site will remember exactly where the bunker is set up. Doing it yourself allows you to be a bit more low key.

Our DIY guide provides a safe, sturdy and flexible design that you can build yourself, using some cheap and easy to come by materials, and your own sweat equity. At 8' by 16', it has a main entry hatch as well as an inward opening escape hatch, requires no outside power or fuel, and will be able to store four people and supplies to survive underground for 28 days (the magic number attributed to surviving a nuclear war).

What's your level of risk?

This is a bit of a personal question, but you need to first determine what it is you are building the bunker for. What kind of risks do you foresee? Make sure that whatever you build can adequately withstand whatever you think will be thrown at it.

In the United States the two most likely natural disasters you will face are tornadoes and hurricanes. Floods and fires are also common, and viral outbreaks or pandemic situations are also a possibility. Solar flares could wipe out entire power grids, or you could face the melt down of nuclear facilities. You'll also want your shelter to be strong enough to survive an earthquake.



In a manmade disaster, the most likely event is an EMP or nuclear attack. Economic collapse and the related civil unrest need to be considered, as well as terrorist acts and dirty bomb attacks.

In short, a good underground shelter needs to have the following:

- Strong enough to withstand a tornado or hurricane.
- An air filtration and ventilation system to protect in the instance of a fire and viral outbreak.
- Waterproof in the event of flooding, and stable in case of earthquakes.
- Deep underground to protect from nuclear fallout, EMP or bomb attacks.
- An entrance to your shelter that allows you to visit unseen.

Length of time in the shelter

One very serious question is to ask yourself how long you plan to remain in the shelter (once the event has occurred). Most backyards don't offer enough space to build large underground structures, however if you have a property outside of town a larger shelter may be desired. The downside with large bunkers is that they are more difficult to conceal as you construct them, especially if large cranes are dropping endless pieces for the structure into your yard.



Most underground bunkers are aimed at allowing you to survive only the initial event in your shelter. This is very easy to keep secret from your neighbors, especially if you are simply constructing more of a "safe room" than a fully fledged underground bunker.

Key considerations

As you design the entrance to your bunker it should be easy to reach from your house, and above the water table. You don't want it to flood during heavy rains! Check with your local government and ensure it's not built on any areas within the 100 year flood plain. The placement should be away from any potential debris, and construct the emergency exits and air inlets on several sides of the building that can be protected from any debris or fire.

All of the bunker's walls need to be underground, protecting the occupants from heat and giving extra support from the surrounding soil. You should not have your bunker near any fuel storage, hazardous materials, or vehicles. Keep bunkers away from any large objects, multi-storey buildings, power lines, or anything that could fall and block the entrances. The bunker should be easily concealed, with adequate air filtration and ventilation systems. If in doubt, buy the more powerful one.

Location

Determining the best place on your property for the bunker is your first step. The local terrain has a huge impact on how effective your bunker will be, especially if you are in flood-prone areas. If you have a large property you have more options than those looking to install a bunker in their suburban backyard, make sure you select a great location.



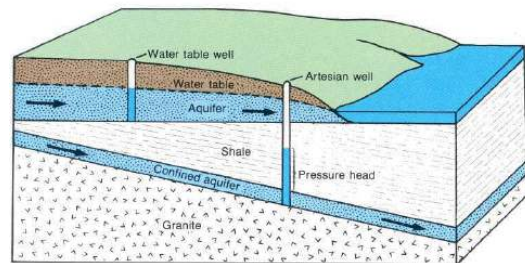
To consider:

- ***What is the ground like?***

This will impact your ability to dig and construct the bunker. Hard granite rocks or clay is much more difficult to dig than porous soil, but they give more structure and support once your bunker is completed. If you have hard soil to dig, you may need to consider renting a bobcat instead of doing it by hand, and speed the entire process up.

- ***What level is the water table at?***

If you have a low-lying property, the water table may only be a few feet under the surface. This is a huge problem for underground bunkers, being continually wet will cause dampness and mildew to form and grow in your bunker. Definitely not healthy if you need to spend any amount of time in there. Make sure that wherever you plan to build the shelter can be dug down deep enough to build your structure without water seeping in through the foundation.



- ***Distance from your primary residence***

Having a fantastic underground town constructed at a remote property in the sticks is fantastic, but realistically you're not going to make it there under many disaster scenarios. Build your bunker as close to your home as possible, so that you can easily reach your shelter in case of an emergency.

- ***Access for construction***



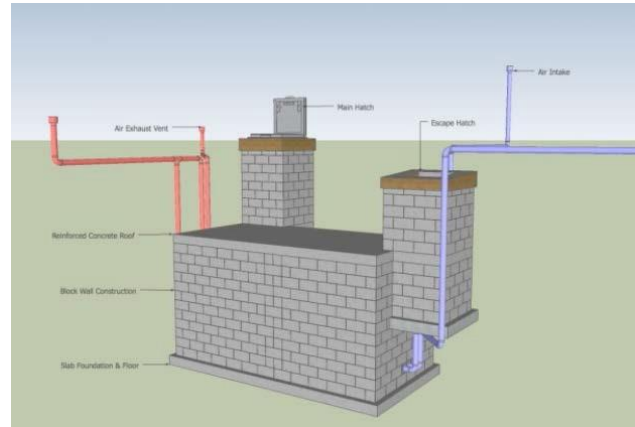
Choose a location that is readily accessible for the cement truck you are bringing in to lay the foundation. If you are too remote you will need to

hire a cement pumper truck to set the foundation, or mix all of the concrete yourself - not fun.

Outline of the plan

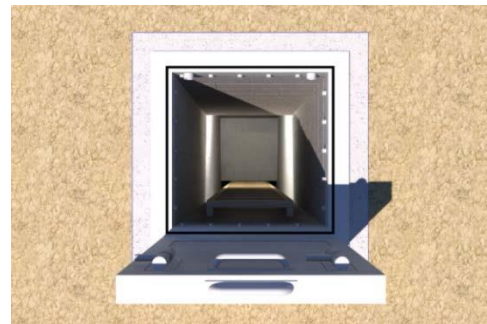
The shelter we aim to build in the DIY design isn't going to be terribly luxurious, but it will serve its purpose in an emergency, and definitely be strong enough to keep your family safe.

Our interior design has four bunks, two of which can fold away makes the living space less claustrophobic. Storage under the bottom bunks can hold gear and food supplies, while providing seats during the day.



A pre-positioned water supply, cupboards and kitchen counter with a sink allow for food preparation, along with a separate area for a composting toilet. Using no outside utilities, it's actually quite simple to build an underground bunker that is totally independent. The composting toilet is simply a non-electric camping style "porta-potti", using little water and costing less than a conventional flushing toilet system. The only downside is that you will need to manually dispose of the waste in a sewer dump after your stay underground.

For more comfort you could build in water, power and sewage lines as you build the bunker, if time and money allows. The downside is that you will need to bring in contractors to do the job properly, potentially raising OPSEC concerns.



Main Hatch

The entry to the bunker is down a vertical ladder. The shaft is to be sealed off at the surface with a blast door, as well as an interior blast door to give a second layer of protection from a nuclear blast, or any raiders looking to break in for supplies.

Dig the vertical shaft deeper than your bunker as a grenade sump, helping to contain any explosives that are dropped into your main entry shaft. Be careful with how deep you dig the vertical shaft, having a high water table will mean that you need to seal the bottom of the sump against ground water seeping in. If your area has this problem seriously consider getting a professionally installed shelter.

Emergency Hatch

At the rear of the shelter we build an escape hatch, which could be converted into a small closet when not in use. The idea is that this is only to be used in an emergency, i.e. when you cannot get

out of your main access shaft. The door of the emergency hatch opens inward, and is concealed with sand 1-2 foot below the ground. Building your kid's sandbox above the emergency exit could be a good way to hide the escape hatch.

When you open the emergency hatch the sand drops into the shelter, allowing anyone inside to escape out. It's a huge task to clean and remove the sand from your shelter after testing your emergency hatch, make sure it's only used when extremely necessary.

Please build two different exits. Those 'emergency exits' at the mall are there for a reason, having a second exit makes sure that your bunker does not become your coffin.



Designing the bunker

Using the Rule of Three for survival, we know humans cannot survive blast pressure for more than 3 seconds, live without air for more than 3 minutes, survive in extreme exposure for more than 3 hours, live without water for 3 days, or live without food for more than 30 days.

Building these safety measures into our bunker, we need:

1. Blast protection from a nuclear explosion, or targeted bomb attacks by raiders after an event
2. Air ventilation systems that give a constant and reliable flow of air throughout the bunker
3. Protection from temperature extremes without any dependence on external energy
4. Water storage that is enough (at a minimum) for a 28 day stay, for four adults
5. Food supplies for a minimum 28 day stay, for four adults

Finally, the protection from nuclear fallout needs to be considered in the design. For a good underground bunker, the keys to keep in mind are that it needs to be as deep underground as possible. Three feet is a good standard depth, and provides the recommended level of fallout protection at the FEMA standard (PF1000). It also keeps you safe from any flying debris or projectiles that could come naturally or from a more local bomb detonation.

In the design phase I would like to highlight that different materials are often discussed in online forums. Many claim that shipping containers are a great way to construct an easy underground shelter. Before we go any further I want to clarify on this point. Shipping containers are built to be stacked, and can take enormous weights and pressure on the corners of the box. Unfortunately if you put one underground, they cannot withstand the constant pressure of the dirt compressing every side. If you are looking for a fast and easy underground bunker, galvanized steel corrugated

pipe shelters may fit what you're looking for. They can be installed fast, with the only downside the price tag.

Our guide uses steel and concrete to build a secure and stable underground bunker, at a fraction of the cost of a contractor to do the job.

Construction

Digging a massive hole

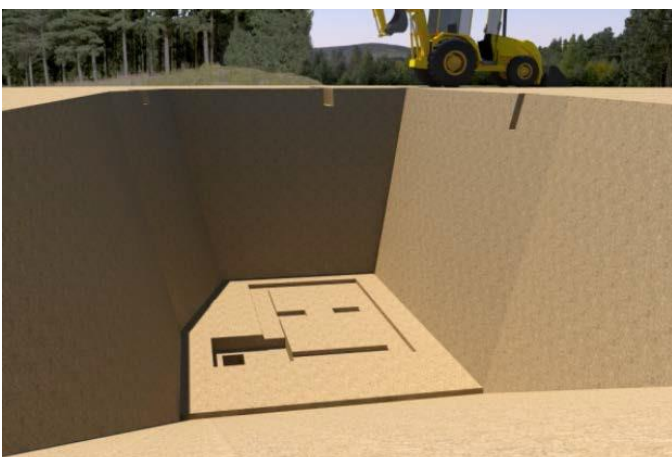
This is going to be one of the most labor intensive tasks of the entire project. Using a shovel and doing it by hand is great for OPSEC, but will take a long time and require lots of hard work. Ideally, rent an excavator or backhoe and dig it with machinery. If you can't operate either of these, a contractor will happily come out and dig a hole for you, just tell them it's for a new pool installation!

Installing an underground bunker on your property depends first on the local governments zoning restrictions. Check what's required, and be sure that you can get the permits before starting any digging or construction.



After getting the right permits, check with the utility companies to ensure there is no underground lines where you plan to build your shelter. If you break one of these it will cause many headaches, problems and additional costs that you just don't need. They will send a representative out to mark out buried lines, check with the following companies and ask them to come flag these for you:

- Water
- Electricity
- Sewage
- Gas
- Telephone
- Cable



Once you know it's ok to dig, you're good to go. If you haven't dug a hole like this before, hiring a contractor will be a great choice here. Plan to dig a hole that is much bigger than your final shelter. This gives you room to work, and allows you to remain safe as the hole needs to be much wider at the top (to stop the walls collapsing inward). Picture a funnel with the bottom at least 14' by 22', this gives you room to work. There isn't a specific formula for the slope of the hole's walls, it

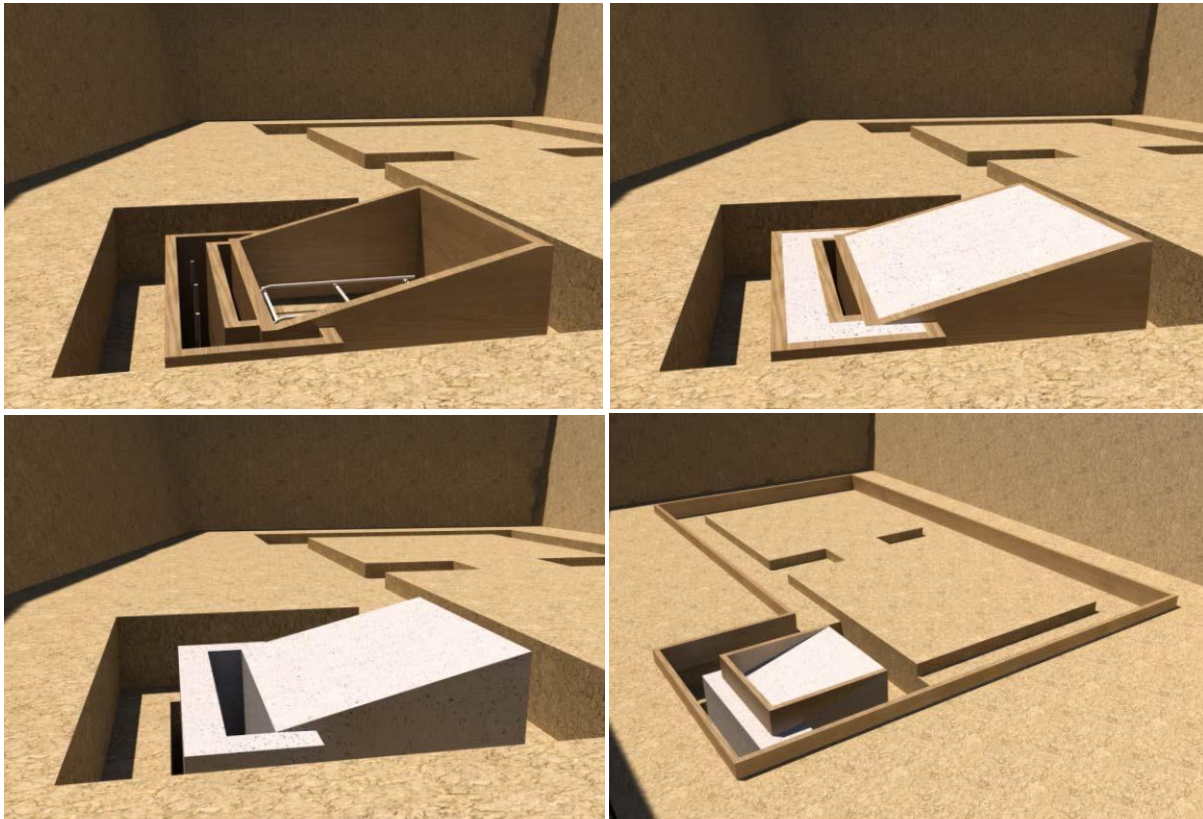
depends on soil consistency where you are building the bunker.

Our example describes the construction of a shelter that is concealed with flat grade above the roof. You can reduce how deep you need to go by digging into a hill or creating a small hill above your shelter.

Pouring the foundation

First, you need to build a well supported form for your base that is perfectly level and square. We first pour the sump, following this with the foundation being poured in around it. Our foundation is 4 inches thick in the centre, with deeper footers around the edge to support the weight of the concrete blocks, roof and the earth above the bunker. The footer should be at least 8 inches deep, and 16 inches wide (our concrete wall blocks will be placed in the centre of the footer).

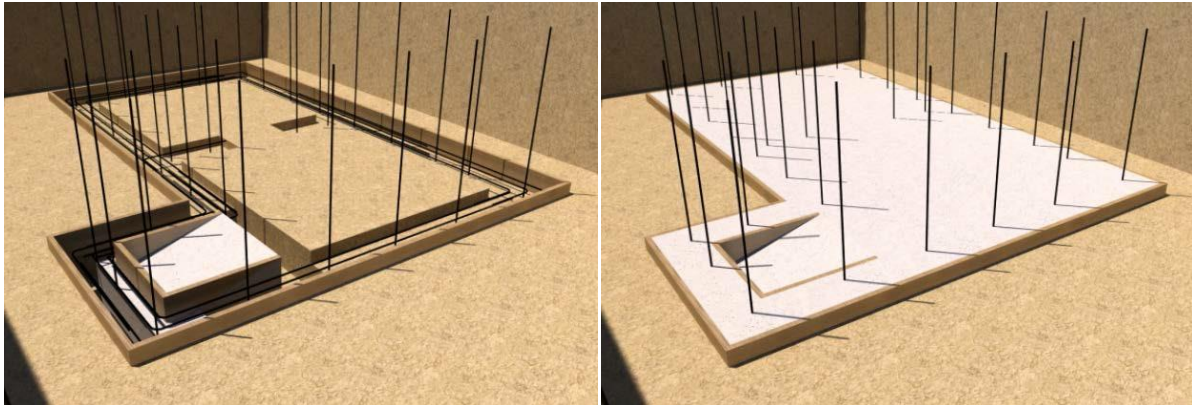
We've used wood screwed together to create the form for the sump, with rebar at both the base of the sump and in the front edge for additional support.



Be very careful here to have your base perfectly level. The concrete blocks we use to construct the walls are made to precise dimensions, if your base is even a little off this will give you a great deal of problems as your walls go up. Take the time and get it right, the first time.

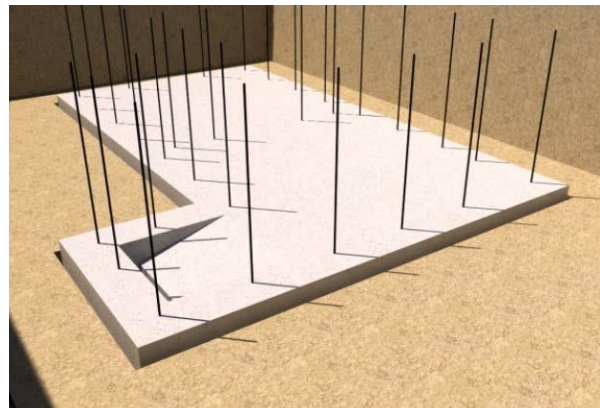
You need to embed rebar into the footers on all sides, with vertical tie ins to extend up into the walls. We've used three rows of 60 KSI #4 rebar running through the footer, and our concrete of choice is 4000 PSI concrete with fiber added for extra strength in the concrete. Concrete reinforcing

mesh in the centre of your foundation will help to strengthen the concrete base and reduce any cracking.



Be sure to check with the local building codes and construction experts when planning your foundation, to be sure that you are using enough rebar and the right type of concrete. Generally, the thicker your footer, and the more rebar you use, the stronger the final foundation.

If you are planning to have outside power, water or a flush toilet, rough the pipes and wires for these underneath your footer before you pour the concrete foundation. It will save you time doing it now, rather than digging



these in later. You could extend these pipes and wires all the way up to the roof of your shelter, and only require a basement sump pump to lift the sewage up and out of your bunker. We don't include these in our bunker plan, as ours is built to be totally self sufficient.

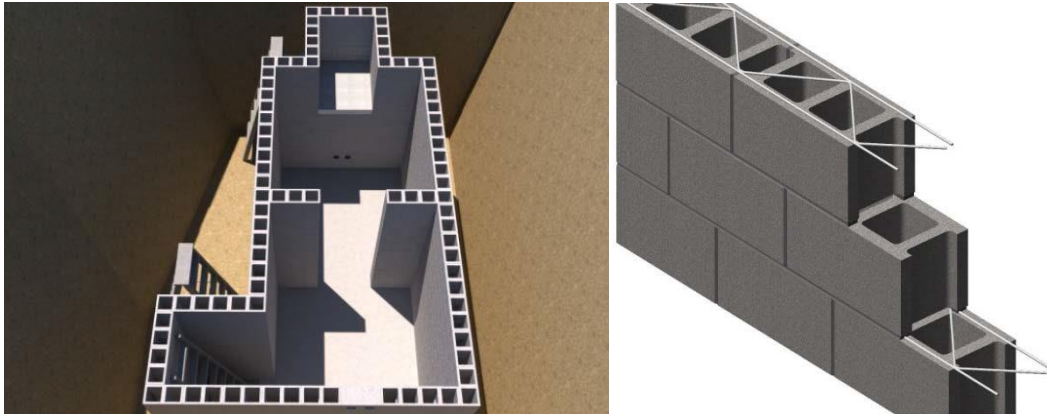
Cinder block walls

Our design uses standard cinder blocks to form the walls. These are dry stacked, reinforced, and core filled with concrete. Standard cinder blocks are 8" x 8" x 16", be sure you order the right size from your supplier as there are many different sizes available. Cutting the cinder blocks is time consuming and may weaken the overall structure.

After the foundation has cured, it's time to begin the walls (28 days is the best possible time to wait, however you can begin after only 3-5 days depending on your local conditions). The two choices you have are to dry stack the walls, or use mortar between the rows. Whatever you choose, make sure the first row of cinder blocks are mortared to the slab foundation.

If you are using mortar, make sure every cinder block is leveled and correctly seated into the mortar before moving to the next. It's best to set the corner blocks first and then fill in the walls. Reinforcing wire mesh adds extra strength between each row. If you are dry stacking the walls, it's critical to

have the first row perfectly plumb, level and square. If you don't get it right from the base the problem will only amplify as your walls reach higher.

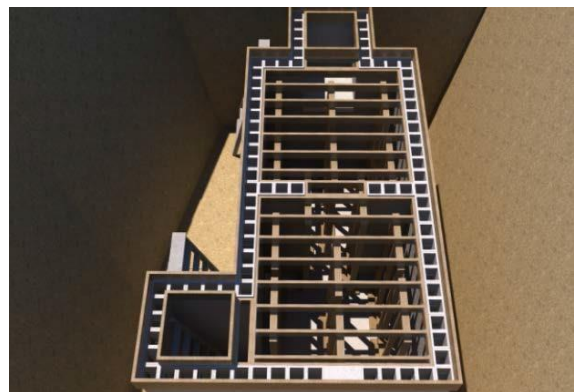


As you build the walls follow the running bond brickwork pattern. This alternating technique adds strength to the walls, critical for an underground bunker where the lateral forces are pushing in your bunker from all sides. Our design also adds a short interior wall that separates the two main living spaces, build out of cinder blocks to give additional support to the two long side walls.

Add rebar into every block cavity and tie all of them into the existing rebar in the slab. You can simply wire them to the protruding rebar you have coming up from the slab. We'll fill the holes with concrete at the same time the roof is poured.

Roof support

Before you can pour the slab for the roof, you need to construct a support system to hold the weight of the wet concrete. Typically this is constructed from wood, and needs to be strong enough to hold the weight of the wet concrete. Once the roof has set it will be both self supporting and strong enough to hold back 3-5 feet of dirt fill above your bunker.



There's no one right way to build the supports for a concrete pour, we've used wooden form boards anchored directly to the outside of the walls as well as temporary supports. If you have any concerns or hesitation in this step, bring in an expert to check before the pour. If something goes wrong at this point you will ruin all the work you have done so far if something goes wrong.

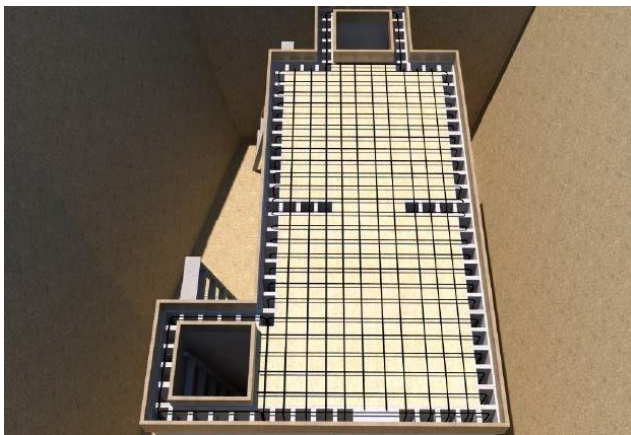
2" x 12"s are anchored to the exterior of the sidewalls, around all hatch openings. Along the inside of every wall we have used 2" x 6" nailers and 2" x 6" rafters on 12 inch centers. These are supported by joist hangers, and small wall panels tilted in place just below the rafters for additional support.

Above all the framework, 3/4" plywood is laid, ensuring every edge is supported by the 2" x 6" nailers and rafters. The plywood is fastened to the underside of every rafter with screws so it can be

easily removed once the concrete is cured, if you use screws on all your supporting framework it will be very easy to disassemble. It also leaves you with a lot of wood you can use for another project, perhaps building a shed above the main hatch to help conceal the entrance?

Before you add the rebar add a thick layer of plastic sheathing to the plywood. It will make your final concrete ceiling smoother, and makes it easy to remove the plywood. Otherwise you may find the concrete simply binds to the plywood and it's impossible to get off!

Rebar in the roof



The concrete slab itself is not strong enough to withstand the downward pressure from the weight of dirt on the roof. Once you've completed the concrete forms, it's time to add the rebar. The steel rebar aids the span of your roof, combined with the concrete pour you will have a very sturdy roof.

We recommend using #4 60 KSI rebar on 8 inch centers in a grid. Elevate the rebar about 2 inches above the plywood, this position in the lower section will give the most strength to the roof. We will pour the roof slab to be around 7 inches thick, using 4000 PSI concrete, again with the fiber added.

Bend the edges of the rebar and extend them down into the wall cavities. You can also tie these off to the rebar protruding from the slab.. This aids the walls by adding additional reinforcement. Anyone with construction experience knows I am going a little bit overkill here, especially with such a narrow span. Regardless, I am building my shelter to withstand any and all external forces, I believe that the extra rebar and the higher quality concrete is going to prove its worth in the event I need to use this bunker against a disaster.

Pouring the roof and filling the walls

Once the form for your roof is in place, pour your slab roof and fill the reinforced holes in your cinder block walls at the same time. This is where the real strength of your walls comes from.

Let the roof cure for at least a week before you remove the supports. As mentioned earlier concrete will reach its full strength after 28 days, you can aid the process by keeping the slab wet. The water in the concrete chemically combines with the cement, if too much evaporates the slab will be weaker. When you are ready to



remove the supports be very careful. Check the concrete roof is self supporting without any cracking or faults before you get into your bunker.

Utilities

If you are planning external plumbing or electric power, this is the step where you would build these in. Our basic design doesn't take creature comforts into account, as the benefits of these systems pose a significant risk if you rely on them in an emergency. In a real disaster, we want to be prepared and not rely on any external systems that could break down.



Our water storage system is repurposed 55 gallon barrels, and we use LED battery lighting and electric vent fans. The pipes in the picture reflect air intakes (blue) and exhaust pipes (red). There is also a third and separate vent pipe for the composting toilet. The pipes we use are 4 inch diameter PVC pipe, you can reinforce these with a large pipe surrounding the PVC made of galvanized steel to make them stronger.

A final note, especially in an underground bunker redundancies are a very smart idea. Build in a back-up alternative (preferably two) for every system you rely on. You'll notice there are a minimum of two air intakes and vents, you could also consider adding one or two more for your own safety.

Some additional questions to think about:

- How will I recharge my batteries once they run out?
- What happens if the water tanks are contaminated?
- Is there a manual setting on my air filtration system (so I can run it without power)?
- What do you do once your toilet fills up?

You'll need to figure out contingency plans for all of these situations, I've attached the full checklist at the back of this guide so you can be sure you are covering all of your bases.



Sealant

Once the plumbing work and piping is completed, coat all of the concrete with a high quality sealant suitable for below grade use. It works as an extra layer of protection against insects and any moisture getting into your bunker. If you want to take it up a notch, adding below grade insulation board will help regulate temperatures in your bunker, and reduce both condensation and mould build up inside.

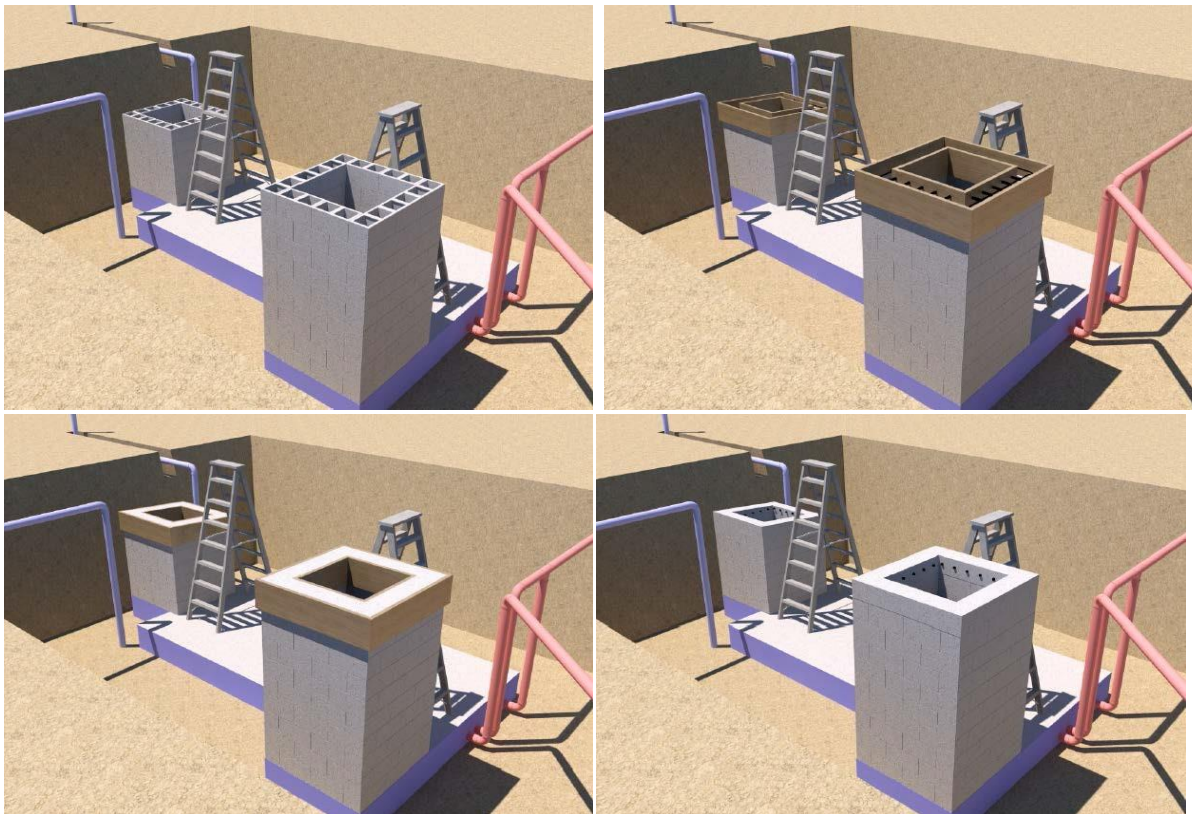
Access Shafts

Before beginning work on the access shafts, backfill the area surrounding your shelter (up to the roof line). This makes it safer to construct the access and emergency shafts, by giving you a flat and stable base. You also won't as high on the ladder as you are lifting the cinder blocks, much better for everyone's safety!

Finish the shafts in a similar process to the roof. We use wooden forms to support the concreting and rebar to strengthen the walls of the access shafts. Once all is in place, simply fill the cinderblock walls of the access shafts with concrete, filling to the top of each shaft with concrete.

Embedding bolts in the concrete at this stage make fastening the final hatches easier, as the bolts are cemented into the shaft. Just be sure you get the measurements lined up right!

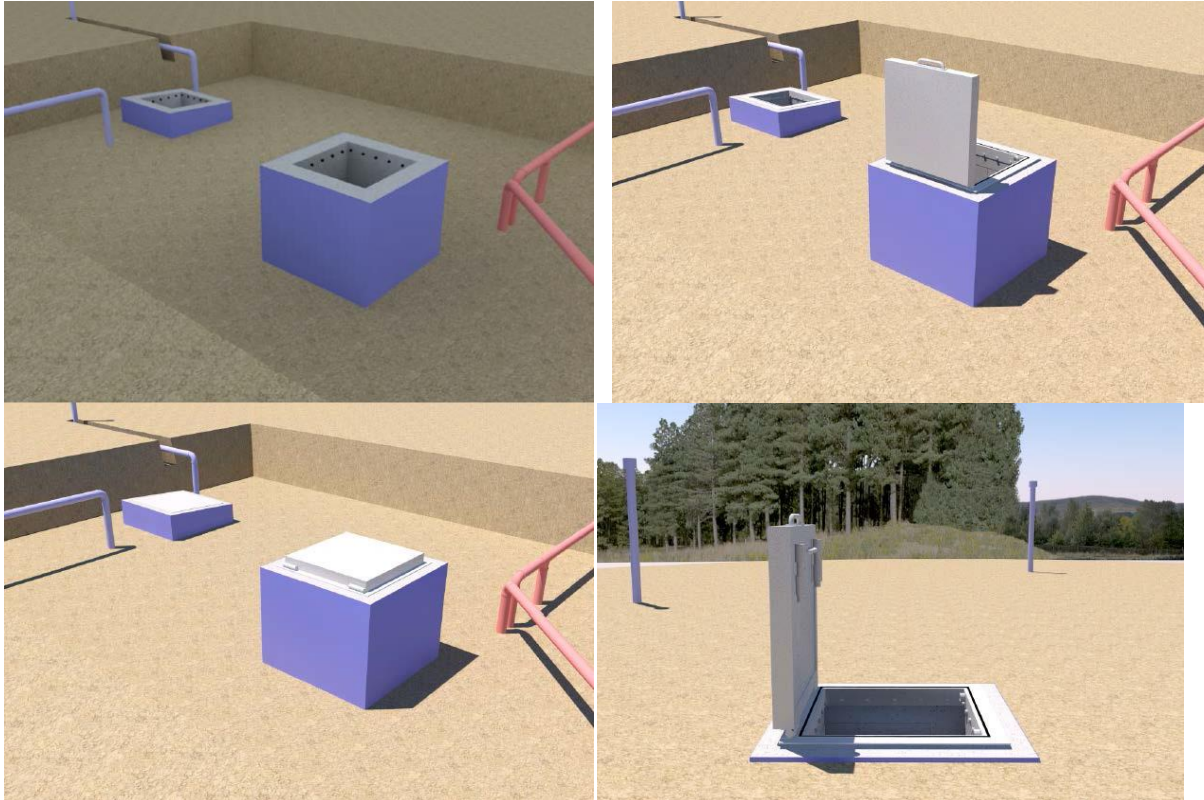
Once the concrete has been poured, let it set and don't forget to seal the walls once complete.



Backfill

Once the access shafts are sealed, you can begin backfilling. Build the ground up enough so that you can comfortably stand beside the top of the shafts and install the hatches. These are typically very heavy, you may need to call someone from your survival team in to help.

Depending on the hatch you have chosen, some need to have additional concrete poured onsite once the hatches are fitted in place. Finish up and complete any last minute sealing work that needs to be done, and fill the hole so it is once again level with the rest of the ground.



Congratulations! Now we begin work inside.

Systems

After finishing the structure of your shelter, it's time to install all of the mechanical systems you need to survive underground. Get all of your electrical wiring done, set up the external security camera's, lighting, air filtration systems and even sump pumps if you need it. Also tackle the plumbing, and get your sink, shower and toilet finished up.

Light

Without windows, you need to have more sources of light than in a normal house. I always choose battery powered LED lights because they can operate independently in case something happens to the power circuits.



Electricity

I recommend having at least two or three renewable sources of power. A solar panel on the roof of your house is a great idea. Run wires down to charge a battery bank in your bunker. The same goes for harnessing the power of the wind. Big wind turbines are more suited to large properties, but small ones can still be fitted on the roof of your house if you are in the suburbs.

Having a power source allows you to recharge any of your accessories as needed, power a radio or let you check security camera footage on your laptop. You can even hire an electrician to come install a mains socket in your bunker, so you can access the power grid while it remains operational.



Water

Our water storage system is self-contained in three 55-gallon barrels. These simply sit in a barrel rack in the side of the shelter. Each feeding into another as a single system. I've installed a faucet and sink for my food preparation, but with a neat set-up so it doesn't require plumbing.

The faucet protrudes from a 5-gallon tank resting above the sink on a shelf. Underneath the sink another 5 gallon bucket is connected to the drain with a simple bit of pipe and collects the waste grey water. You can reuse this water after filtering it, especially if you are using natural soaps without harsh chemicals. In an emergency, a backpacking filter stored under the sink will allow you to safely filter this water, and boiling it will help remove any biological contaminants. Just never, ever drink grey water.

If you are worried that this isn't enough water in your bunker, an easy fix is to install a rain catchment system to the roof of your house. The main storage for a typical rain catchment system sits above ground, and you can use this for daily tasks like watering the garden. Just build in a hose at the back of your system that feeds into your bunker. Make sure you get the plumbing tight as you don't want any water to leak into your bunker. Once correctly fitted, all it will take to refill your bunker's water storage is to turn on the water feed.

Toilet

Our toilet design is a non-electric composting toilet. Requiring no plumbing (except the air vent we put in), human waste is collected in a catchment behind the seat. Circulating air through the vent dries the material, effectively composting it (electric version with motorized fans can dry the waste much faster). If your stay in the bunker is a long one, you can store the compost in sealed





5 gallon buckets in the main access (outside the shelter, but behind the main blast door). Simply remove them once it's safe to leave your shelter.

If a high tech system is out of your budget, you can build a humanure toilet system. Essentially it's a 5 gallon bucket, inside a box that's fitted with a toilet seat. After each use a layer of sawdust covers the deposit, and helps reduce and odors. This toilet system works best if you can separate feces and urine, easier for men to do but special toilet seat adapters can allow you to collect and store urine separately with ease.

Air

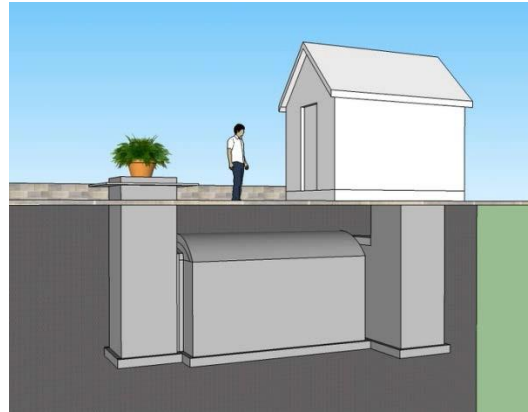
The air system is comprised of several 4 inch diameter pipes, blue bringing the fresh air in, and red taking the exhaust air out. Because the warm air rises, we have placed the exhaust vents high in the walls, and the intakes down by the floor. Without fans this will create a slow flow of air through the bunker, but your best bet is to fit a commercially available shelter air filtration system to the air intakes. This is essentially just a low voltage fan with special filters, to catch large particles, a HEPA filter to catch smaller particles and a carbon filter to remove gaseous materials and any odors. If you are stretched for cash local greenhouse suppliers also have ventilation systems, not rated as high as the NBC filters but better than nothing in an emergency.



Bringing fresh air into your shelter is critical, as well as filtering it so you can happily breathe whatever the circumstances. Always install blast valves, to protect you from positive pressure blasting, with manual back-ups, generators and batteries. A minimum of galvanized schedule 40 steel can withstand normal earth movements, all of your air vents should be protected.

Camouflage

One of the keys to OPSEC is making sure that no-one is aware of what's hidden beneath your yard. You will need to camouflage both the air intakes and vents, as well as your entry and escape hatches. When the world plunges into crisis mode you don't want to be advertising your bunker to the masses, there may just be someone who is willing to do whatever it takes to save themselves, at the expense of your families security.



In an ideal world, the main entry to your bunker will be located inside your house. This will allow you to move to and from your shelter without attracting any attention. Unfortunately, this isn't an option for most people, as a backup construct something simple on top of your structure (that covers the hatch). Whether it's a greenhouse, an outdoor shed, gazebo or outdoor kitchen, you need something to cover the 32 inch opening that is currently sticking out of the ground.



Just be certain that whatever you build to camouflage your hatch, it's not too heavy to shift if the entire structure collapses. A greenhouse constructed out of wood and fiberglass panels will be easily lifted with the help of a jack, but a concrete shed and roof collapsing over the hatch will probably force you to use the emergency exit.

Camouflaging your air intakes and vents is critical. They need to be elevated above the ground and protected from damage from vandals. Run them up the inside of lamp posts, playground structures or concrete block walls disguised as drain pipes. The more discrete you can make them the better. Your vents will draw odors from your bunker, and be piping warmer than natural air into the surroundings. In a disaster event, well equipped teams will be able to spot the differences in temperature with thermal imaging cameras quite easily. Probably not something in the everyday Joe's survival kit, but in a disaster you never know what to expect.

Protecting your vents with barriers and objects like trees will help to camouflage and mask any thermal heat signatures. Designing your vents to diffuse the heat within greenhouses or planter boxes will help to hide your vents. If you are in an area with heavy snow fall, be sure that both your access hatch to the bunker and the vents and exhaust fans are above the snow line, and protected from getting blocked.

Stocking your bunker

Once your bunker is constructed, it's time to put the finishing touches into the interior and stock all of the gear and supplies you need to survive. We've built four small bunks, the top levels that can be easily folded up to give more space during the day. Small cupboards will help to store any goods off the floor, and make use of lost space for storage like the underneath of the bottom two bunks.



Water

A well stocked shelter needs at least one gallon of water available per day, per person. This means that for a 28 day stay, you need a minimum of 28 gallons of drinking water per person. You'll also need additional water for bathing (or showering), food preparation and cleaning. Go sparingly on your water during your stay, it's more important to be drinking than wasting your water with a hot bath!

If you follow our water system plans, three 55 gallon drums can hold enough drinking water for four adults, for forty days. Beyond the crisis have a stock of water filters, electric and hand held water pumps, these are going to be very hard to find once the world descends into chaos.



I also recommend having additional sources of water on your property, to really remain sustainable. As previously mentioned a rain water catchment system can supplement your bunkers water supply, and also remain a good source of free water during daily life. If your local council permits it, bore a well in your property. Using a windmill and pump, when you reach the underground aquifers you will have an almost unlimited supply of water, no matter what happens to the water company.

My advice is to always prepare for more than you think you actually need, it gives you redundancies in your plans should something go wrong.

Food

The preferred meals in your bunker are stable foods you can eat that require no preparation. MREs (meals ready to eat) are a good choice, as they can be eaten immediately, with little clean up and no cooking fuel required. Sea rations and freeze dried food are great as they only require hot water to



reconstitute, and canned meals can add some great variety while you are underground. Don't forget to stock up on your favorite treats, this will help keep you sane.

Pack enough chocolate bars, coffee or soda to keep you happy for at least a month. Bulk food like rice, beans, wheat and other grains are a good idea to store. After a crisis they may be in short supply, are less expensive than ready to eat meals, but require cooking and preparation. Seeds are a good idea to have as well, they can help you regain fruits and vegetables in your garden once the

crisis is over. Be sure to only have non-GMO or non-hybrid seeds, then they will be able to self germinate for the following year.

As a redundancy I recommend storing your food supplies in at least three separate locations. Your kitchen is going to be the first target for any hungry raiders, you should only keep a (reasonable) amount of food in your kitchen cupboards, 1-2 weeks is plenty. Your bunker should hold enough food to last four adults a month, and add a third cellar or cold store to keep the majority of your supply. Some people convert rooms of their house, while others section off parts of their basement to create a more discrete food store, I've even seen underground food cellars built in a similar fashion to our bunker.



Another option is to add an Aquaponics system to your underground bunker to provide endless fresh food for yourself and your family. [I recommend using the Aquaponics plans found here.](#) Aquaponics seems to be taking off not just here in the U.S. but all over the world mainly because it's a way to grow healthy organic food without pesticides or GMO's.

Comfort items

Pack the shelter full of the things that will keep you busy and keep your mind occupied. Entertainment items like books, craft materials and board games will help pass the time. Comfortable mattresses, as well as good sleeping bags, pillows, blankets and towels will make any time you spend underground that much more comfortable.

You could even include an exercise bike or a pull up bar so you can work out during the crisis and not be too sedentary. It's a great form of stress release, and if you buy a bike that has a generator attached you can use this to power your appliances (while you pedal).



Bug out bags

Part and parcel for any good survivalist, having a mobile kit ready for every member of the team is critical through surviving the ordeal. Store these in your bunker, so that all you need to worry about in a crisis is getting inside the bunker. The best option for most people is to stay near their shelter after a disaster, but if you are forced to travel (a flood may have destroyed your primary shelter), you at least have the basic necessities in your kit to survive. Make sure that you update your bug out bags regularly, you don't want to be caught out with only summer clothes in the middle of winter.



Radiation detection

Have the right gear to measure the current radiation levels as well as your total exposure over time. A radiation meter tells you how much radiation is present at a single point in time, perfect for checking items like food, soil and water after exiting your shelter. A dosimeter (or exposure card) will tell you the radiation levels you have been exposed to over time.



Buy both a digital radiation meter and a refurbished cold war era survey meter. It's a smart idea to buy one of each, for the redundancy as well as flexibility. During the weeks right after a nuclear explosion, the cold war meters offer a wider scale so you can stay on top of the overall radiation levels. Digital meters have a finer scale, which are great for helping you to detect low levels of radiation in your food and nearby soil after a nuclear event.



Protective Clothing

Fallout resistant clothing and masks, can provide a basic protection from any fallout materials. Purchase disposable coveralls and military surplus gas masks. If you need to exit the shelter for any reason, this gear won't protect you from all of the gamma radiation, but they will reduce the amount of fallout material that infects your body. Ideally you should not exit the bunker at all until radiation has dropped back down to normal levels.

EMP Protection

One of the biggest risks is that an electro-magnetic pulse (EMP) fries all of your electric items. This could be from a solar flare erupting on the surface of the sun, or atomic weapons detonated at a high altitude. Building a simple faraday cage is easy, and can protect a back up of all of your electric items. In a nuclear war it's reasonable to expect that EMP weapons would be deployed to cripple communications while targets are destroyed with ground and air attacks.

All you need to do to protect your electronics is a tight wire box, grounded via a copper rod in the ground.

Sealed metal garbage cans work well as a DIY faraday cage, just make sure you ground them. Pre-position all of the electronic items you need in your faraday cage for use during or after any disaster.



Defensive items

After a catastrophe, you may need to protect yourself or your family. There will be many people who are very desperate, hungry, or simply taking advantage of the disorder for their own gain. You need to have an adequate supply of firearms and ammunition, so that you can take whatever steps



necessary to stay safe. Make sure that all of your family is trained in the correct and safe use of weapons, and are comfortable firing them.

You have no idea how life will be after the crisis, prepare for the worst and hope for the best.

First Aid

Having the right information and supplies on hand can make or break your survival. Take some classes at your local red cross centre, and buy a couple of books like:

- [Survival Medicine Handbook](#)
- [Emergency War Surgery](#)

Constructing a fully stocked first aid kit takes time and resources. In general, try to put one together that has treatment for the following:

1. **Diarrhea** (immodium, electrolytes, activated charcoal tablets etc.)
2. **Wound care** (disinfectant, bandages, burn gel, ibuprofen, tweezers, scissors etc.)
3. **Fever** (heat and cold packs, more ibuprofen, thermometer)
4. **Pandemic** (masks, gloves, pandemic flu kits or infection prevention kits)
5. **Dental** (grab a dental medic kit, they have all the supplies you need to stop dental pain)
6. **General** (allergy medicine, insulin, eye care, painkillers etc.)



The last point, is again: **Don't forget about OPSEC.** With every preparation you make, the more people who know about it, the higher chance of your supplies becoming common knowledge. In an everyday situation that is quite ok, but in a disaster you don't want the entire neighborhood knowing about your underground bunker, the year's supply of food secreted around your house, or all of the self sustaining additions you have made that ensures you will be fine once the grids go down. You have the best chance of survival if you are not competing to keep control of your resources.



Bug out Location: Check List

- ✓ Will the bunker hold all of the people who are likely to use it?
- ✓ Does the bunker provide protection from nuclear, biological and chemical threats?
- ✓ Is water available independent of any municipal supply or source?
- ✓ Do I know how I will preserve my food?
- ✓ Have I identified how I will heat and cook?
- ✓ Is it possible to safely store food, clothing, explosives, guns and ammunition in the bunker?
- ✓ How will sanitation be managed in the bunker?
- ✓ Does anyone who won't be using the bunker know of its existence (neighbors/friends)?
- ✓ Have I devised a workable defense plan?
- ✓ Can the area be patrolled?
- ✓ Can entrances be protected and guarded?
- ✓ Do I have the proper equipment to patrol?
- ✓ Does my plan allow for setting up a viable existence after a collapse (gardening/farming)?
- ✓ Do I have any books to read, and any necessary reference books?
- ✓ Is the library good enough to provide the information needed after the collapse?
- ✓ If the library is not good enough, what books do I still need?
- ✓ What about medical supplies and information? Have I got that covered?
- ✓ Have I provided for nuclear monitoring? Do I have Geiger counters, dosimeters etc.?
- ✓ Do I have decontamination suits so I can guard, patrol and take care of outside chores?
- ✓ Have I evaluated my people and assigned them into various duties the best way possible?
- ✓ Am I psychologically equipped to defend my retreat?
- ✓ Can I or any of my group actually shoot intruders or raiders?
- ✓ Does everyone know which situations will actually trigger the defense plan?
- ✓ Do I have a stock of barter goods? Are they properly stored?
- ✓ Do I know how everyone will get to the bunker, unless it is their permanent residence?
- ✓ Does everyone have an alternative plan for getting to the retreat, preferably two?
Include contingencies from your office, the kids schools. You never know when a crisis can hit.
- ✓ Have I evaluated the various threat possibilities and then made realistic plans to counter them, especially the non-confrontational, non-military threats?
- ✓ Do I have a battle plan that fits everyone into the defense structure?
such as shooters, non-shooters, gun loaders, look-outs etc...
- ✓ Do I know the warning signs that indicate it's time to put my retreat plan into operation?
- ✓ Do I the correct guns and ammunition?
- ✓ Have I planned for communications?
- ✓ Have I planned for special medical/dietary needs of the group?
- ✓ Have I taken care of my group's current medical/dental requirements so these won't be of immediate concern after the collapse?
- ✓ Do I know how to reload ammunition and operate and repair guns?
- ✓ Am I skilled at using alternative means of transportation?
such as bicycles, motorcycles, ATVs, snowmobiles, trucks etc.
- ✓ Am I highly motivated and self-confident?
- ✓ Do I know my home territory?
- ✓ Does my survival plans include adequate stock of tools, utensils, barter items for use in the new economy?
- ✓ Do I know where to get the consumable items we will need such as light bulbs, grease, oil, soap, toilet paper, canning lids, salt, needles and thread?
- ✓ Will my bunker withstand an explosion?
- ✓ Do I have a continuing survival training program?

- ✓ How will we stay in shape while in the bunker?
- ✓ Have I studied other collapsed societies and how people are surviving?
- ✓ Do I know how to use game, fish and wild plants in my area?
- ✓ Do I know how to garden in my area?
- ✓ Is it possible for attackers, raiders to sneak up on the bunker unseen or, more importantly, for them to detect my bunker without exposing themselves?
- ✓ Have I tried to look at defeating my bunker from the eyes of an enemy?

My favorite part about survival planning is incorporating simple and effective techniques together to put you in the best possible situation for surviving a crisis. Building a bunker in your backyard is an excellent prep, giving you a fortified safe house against whatever disaster comes. Combine this with a little training, some foresight and planning on food and water sourcing, and you can be one of the new 1%, the survivors.