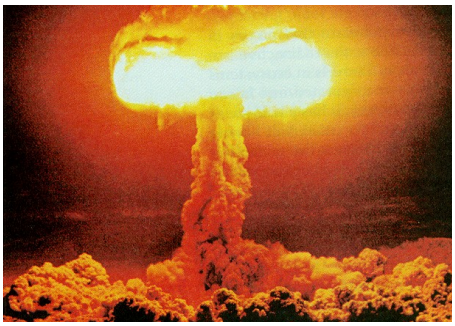
A Long-Term Survival Guide - Surviving Atomic Weapons (Part 2):



Part 2 – Conventional Nukes: The most likely scenario, for a terrorist attack using a conventional nuclear weapon, would be for terrorists to set off a small stolen (or black market) nuke, near the center of a major city. We can predict this with some degree of certainty, due to the constraints of economics, the laws of physics, and the mind-sets of evil people.

The first nuclear terrorist attack will be with a small atomic weapon, because small nukes are easier to steal, easier to transport, easier to smuggle, and easier to conceal. A small nuke would also be cheaper to purchase, on the black market. Atomic weapons are also limited by the laws of physics, especially the inverse-square law. A nuke that is twice as big will not do twice as much damage, only half again as much damage, so there is no real advantage to using larger weapons.

Evil idiots who use terrorist tactics want to cause as much fear and panic as possible when they attack, both to demoralize their targets, and to get a kind of twisted admiration from similar terrorist types. Being able to brag about using the first nuke in a terrorist attack will be more important that the actual effectiveness of the attack, in their abnormal world view.

What this means is that they MUST target a major city center, because there is no psychological reward for them, if they nuke a small Kansas town surrounded by wheat fields. Ironically, when people see how little damage is actually done by a nuclear weapon (compared to the decades of doomsday scenarios that have been shown on TV), they may lose most of their irrational fears concerning atomic weapons and atomic power plants.

If terrorists set off a small nuke in the center of New York City, 99% of the population will be completely safe. It is only the uncertainty, fear, and panic caused by lack of understanding of nuclear weapons effects, and deliberate misinformation spread by misguided disarmament folks, that will cause actual disruptions to our society. The panic, you see, causes a lot more problems than the actual attack could ever do.

On the other hand, if you know what nukes can and cannot do, you will not be driven by fear, but you will be able to make informed decisions. Lesson one here should be that if you don't live in a major city, you will probably never have to worry about dealing with a terrorist nuke, but you should be prepared to deal with disruptions of the supply of goods and services, caused by the resulting panic.

But let's look at the worst-case scenario, and assume that you happen to live and work in the most likely terrorist target area, the heart of a major city. If your city gets nuked, what can you expect?

Conventional nuclear weapons all produce certain predictable, well-understood effects when they are detonated at ground level. These include a small blast crater, a very bright flash of light (that lasts for just a few seconds), a very powerful, expanding shock wave (that loses power quickly), a large fireball (that rises, to create the mushroom-shaped cloud), and a rain of radioactive fallout particles (that fall to earth, downwind of the blast site). Let's look at each effect, in more detail.

Light Flash: The detonation of a nuclear weapon produces an intense burst of light, which can be up to four times as bright as the sun (at noon, on a sunny day), so you will know it if it happens. If the daylight suddenly increases by a factor of four, the natural reaction is to shield your eyes and turn away, like you would if 100 people suddenly pointed million-candlepower spotlights at you. This is the correct response, as looking at the flash may leave you flash-blind, for several hours.

The flash from a nuke is brighter than the sun, and may be hot enough to make paint smoke.

But the nuclear flash is so intense that it is also very hot, much hotter than the sun on your bare skin at noon during the summer. If you have ever used a magnifying glass to concentrate sunlight, and cause objects to smoke, or even catch on fire, then you know what to expect from a nuke flash.

The trick to reacting correctly is knowing what to expect, and then mentally conditioning yourself as to what to do. You want to practice in your mind, thinking about, and rehearsing the correct defensive moves. For light flash, these include: Shield Your Eyes (with your hand), Turn Away (from the direction of the light flash), and Take Cover (dive into the nearest available shade, to avoid burns from the heat of the light burst).

Shielding your eyes with your hand is a natural reaction, and can keep you from being temporarily flash-blinded during a very dangerous time, when being able to see will be critical to your survival. Turning away from the flash will protect the eyes and face from possible flash burns, caused by the intense heat of the light burst. Diving into the nearest available shade will protect your whole body from flash burns, and will give your eyes more protection from the intense light. These actions may not guarantee your safety, but they will give you the best possible odds of avoiding injury, so be sure to mentally rehearse them periodically.

Many variables, such as bad weather, dirty air, or time of day or night, may affect the intensity of the light flash, and the possible damaging effects from it, so it is difficult to give exact predictions. You may be completely protected at the time of the attack, such as while inside a concrete office building, or while riding on an underground subway, or you may be doing something that makes things even more dangerous for you, such as driving through rush-hour traffic (if so, cover one eye with your hand, and use the other to see to safely stop the car, keeping the covered eye as a backup, in case the uncovered eye gets dazzled).

Dilated pupils make you more likely to get flash-blindness, from a night-time nuke attack.

Dark clothing, and dark skin, tend to absorb more of the heat from a light flash (more likely to burn), but light-colored surfaces (white buildings, or snow) tend to reflect more of the flash (more likely to give you flash-blindness, from indirect reflection). A night attack is more likely to cause flash-blindness, to people who are outside at night (whose pupils are more dilated). Bad weather (clouds or rain), or smog or dust in the air, may make the light flash effects much less intense.

THERMAL EFFECT	RADIUS IN MILES	
	1megaton	10 megaton
Retinal spot burns	200.0+	200.0+
Visible charring to some paper and cloth	11.0	30.0
Ignition of dry leaves	11.0	26.0
1st degree skin burns	11.0	25.0
Ignition of inky parts of dry newspaper	11.0	22.0
2nd degree skin burns	10.0	22.0
Ignition of dry grass	9.3	23.0
Visible charring of unpainted wood	8.4	20.0
Ignition of light blue cotton bedspread	8.2	20.0
3rd degree skin burns	8.0	19.0
Ignition of dry pine needles	7.0	16.0
Ignition of cotton Venetian blind tape	6.5	16.0
Ignition of brown cardboard box	6.2	13.0
Ignition of khaki cotton shirt	6.0	15.0
Ignition of new blue denim	5.4	15.0
Ignition of new white typing paper	5.3	11.0

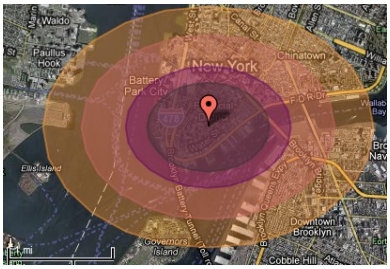
Chart of possible thermal effects, from a 1 megaton and a 10 megaton nuke.

The possible thermal effects shown on the chart above should be considered as the worst possible effects, on a dry summer day. To get the skin burns listed, you would have to refuse to take cover, and keep standing in the open. Clouds, or wet weather, will make these possible effects less severe. The idea that an exploding nuke will set everything on fire, for miles around, is simply not true.

Blast Crater: A one megaton nuke will make a blast crater roughly one quarter of a mile across. But increasing the size of the bomb to 100 megatons (100 times as powerful), will only make a blast crater about three quarters of a mile across, due to the limits of the inverse-square law.

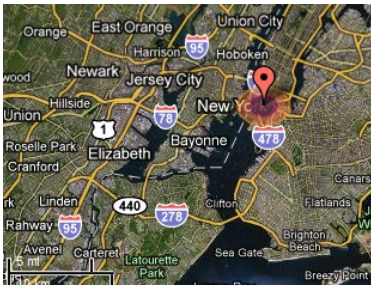
Nuclear blast crater, from a desert test site.

The idea that a nuclear weapon will simply "vaporize" everyone, comes from the blast crater, where everything seems to have been disintegrated, and from thinking that a much larger bomb should cause a much larger area to vaporize. But the inverse-square law makes this impossible, and actual military tests with atomic weapons confirm it. Larger weapons just can't live up to the hype.



At first glance, detonating a nuke in a major city center seems like it would destroy everything.

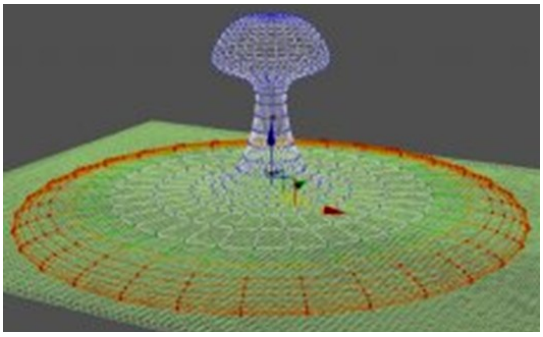
This is why the US nuclear arsenal is made up of 5000 small nukes, and not 50 really big ones. Even the Soviets understood how limited the destructive power of atomic weapons actually is. At the peak of the cold war, they had 14 missiles armed with atomic warheads aimed at Los Angeles.



But when you scale back a bit, damage from a nuke just makes one small dot on a map.

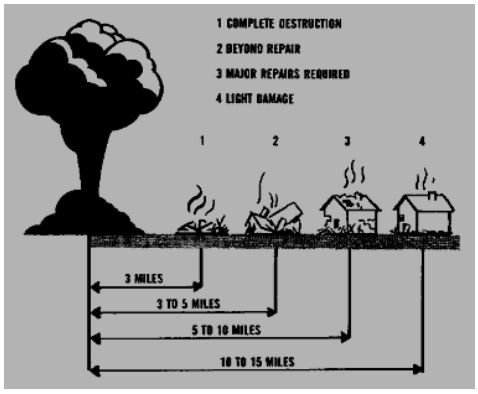
Why? Because they were convinced that 10 bombs would not do enough damage to this relatively small area (and they were right). Nukes do plenty of damage, but not the silly, end-of-the-world kind of damage that scaremongers would like you to believe. Anyone in the small blast crater area would be killed instantly when the atomic bomb exploded, but this will be the smallest fraction of bomb victims. Most fatalities from nukes are caused by the shock wave, not the tiny blast crater.

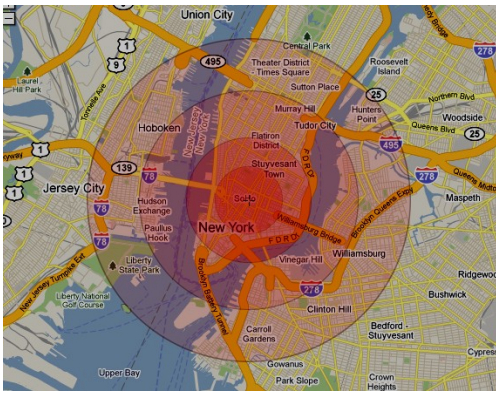
Shock Wave: The energy released by an atomic bomb superheats the air nearby in seconds, until it is hotter than the sun (well over ten million degrees). This suddenly hot air expands violently, creating an explosive shock wave that races away from the center of the detonation, at roughly 4,000 miles per hour (faster than the speed of sound, but the speed drops off quickly with distance). The air ahead of the expanding blast wave is compressed; it bends light, so it is usually visible, and it looks like a sheet of glass moving out from the center of the explosion.



An atomic bomb creates a shock wave, that races away from ground zero in all directions.

The force of the shock wave, within about two miles from the blast site, is strong enough to knock down most concrete buildings, and kill people (by severe lung damage, from the high air pressure). This is because the shockwave of air is still moving at about one thousand miles per hour, but slowing down quickly, as it expands. The shock wave covers the first two miles in less than ten seconds, so you wouldn't have time to do anything, if you were this close to the detonation site.





The bullseye of an a-bomb gets the worst shock wave damage, but damage lessens with distance.

Farther away, from just over two miles, to about seven miles, the shock wave won't burst your lungs, but still has enough force to kill or injure you (by throwing you against cars or buildings). At these ranges you can easily increase your survival odds, by diving behind a building, jumping into a ditch, or just lying flat, and you would have ten to thirty seconds to take cover, before the shock wave hit. The shockwave will have slowed into the hundreds of miles per hour range, and will still be slowing rapidly, as it expands. Quick action at these distances can literally save your life, if you know the correct actions to take. These are: Shield Your Eyes (from the light flash, as stated earlier), Dive Behind The Neatest Blast Protection (get behind a concrete building or wall, dive into a ditch, or lay flat if caught in the open), and Cover Your Ears (protect your eardrums).

Still farther away, from just over seven miles, to about twenty miles, main dangers will be the flash blindness, and flying glass from windows that will be shattered by the shock wave. Taking cover is important at these ranges, but it may take from thirty seconds to two minutes for the shock wave to hit, so you should hunker down for at least two minutes. The flying glass will have enough energy to cut right through your body, so get away from windows, and stay down for the full two minutes.

A nuke causes four square miles of severe damage, and about 30 square miles of lesser damage.

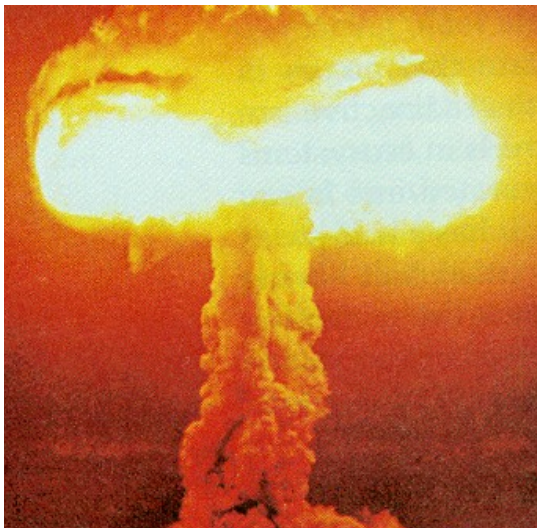
The shock wave of air may still be moving at over one hundred miles per hour, so you should still protect yourself from light flash, flying debris, and ruptured eardrums, by taking protective cover.

SHOCK WAVE EFFECT	RADIUS AND ARRIVAL TIME / megaton		10 megaton	
	VIILES	TIME	MILES	TIME
Parked private airplanes damaged but livable; windows have light damage [0.5 psi]	21	1.5 min	45	3.0 min
Windows heavily damaged, wood frame houses lightly damaged. [1.0 psi]	14	1.0 min	28	2.3 min
Some glass shards capable of penetrating abdominal wall.	8.5	38 sec	15	1.0 min
Human body thrown hard enough to cause incapacitating injuries.	7.0	28 sec	18	1.2 min
Human body thrown hard enough to cause 1% fatalities.	5.8	25 sec	15	1.0 min
Forest roads impassable due to fallen trees.	5.7	24 sec	15	1.0 min
Wood frame houses collapse, 1% of eardrums rupture. [5 psi]	5.5	22 sec	9.5	35 sec
Brick apartment houses suffer severe damage.	4.2	16 sec	8.9	32 sec
Human body thrown hard enough to cause 99% fatalities.	3.8	14 sec	8.9	32 sec
Cars and trucks damaged too severely to drive.	3.6	14 sec	8.9	32 sec
Reinforced concrete houses lightly damaged. [7 psi]	3.5	13 sec	7.5	28 sec
Minor injury to lungs from overpressure. [15 psi]	2.2	7 sec	4.6	15 sec
Highway bridges of 250-400 foot span barely passable.	2.1	7 sec	5.7	20 sec
Highway bridges of 150-200 foot span barely passable, multi-story reinforced concrete office buildings severely damaged.	1.9	6 sec	4.7	15 sec
Multi-story steel frame office building (earthquake resistant) severely damaged.	1.7	5 sec	3.8	12 sec
Reinforced concrete houses collapse. [25 psi]	1.6	4.5 sec	3.4	10 sec
Lung injuries from overpressure cause 1% fatalities. [35 psi]	1.3	3.5 sec	2.8	7.5 sec
99% of eardrums rupture. [45 psi]	1.1	2.7 sec	2.4	6.0 sec
99% fatalities from lung damage. [65 psi]	0.9	2.1 sec	2.0	4.5 sec
Buried concrete arches collapse. [200 psi]	0.5	0.9 sec	1.1	1.8 sec

This chart shows probable damage from nuclear weapons, at various distances.

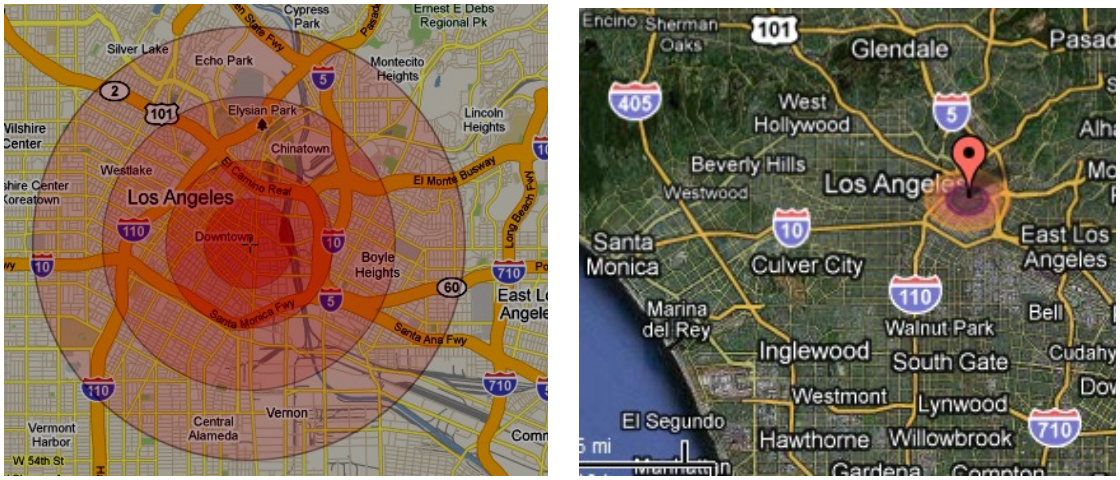
So basically a nuke will cause very severe building damage and almost certain death closest to the blast, in a circle covering about four square miles of the city, and then lesser building damage, with a decent chance of survival for people who react correctly, in a larger circle covering about thirty square miles of the urban landscape. A final, even larger circle will have much less severe damage.

Fire Ball: The massive release of energy from a nuclear explosion creates a huge fireball, roughly one mile across, and super-heated to several million degrees. This fireball, like the world's largest and hottest hot-air balloon, has unbelievable lift. It immediately rockets upwards, at several hundred feet per second, shooting up to over 30,000 feet altitude, with such force that it creates a huge vacuum underneath it.



An atomic fireball literally pulls up the ground underneath it, leaving a large hole behind.

The combination of these forces drags several tons of dirt and debris up into the sky under the fireball, like passengers under a runaway hot-air balloon, leaving a large hole behind, where the ground used to be. (This is how the blast crater is created.) By the time the fireball gets to 30,000 feet, it has cooled enough that it stops giving out as much light, but the up-rush of air continues to throw the dirt from the hole skyward, much like ash from a volcanic eruption.

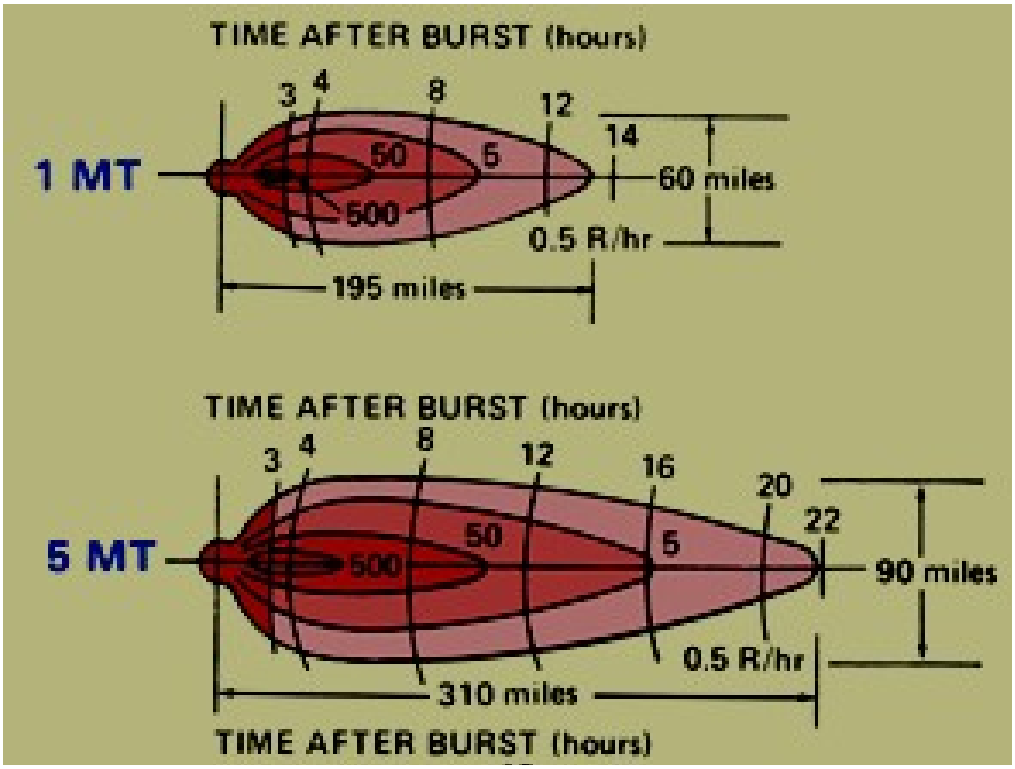


An atomic bomb in downtown Los Angeles will not cause any damage to most nearby areas.

So in less than two minutes, the fireball morphs into a giant cloud of dirt, smoke, and debris, all of which soon starts to rain back down to earth, causing the effect known as fallout.

Fallout: What is fallout? It is just radioactive dirt. Radioactive fallout is created when the suction wave of the blast carries dirt and debris upward, in the vacuum created by the nuclear fireball as it rises. If the explosion is close to the ground, the matter sucked from the surface of the earth moves into the fireball, and is incinerated by the intense heat. (This dust is the "stem" that gives ground bursts their mushroom shape.) As debris is pulled up into the nuclear explosion, it is exposed to the radiation produced by the chain reaction; this exposure induces radioactivity in the debris. As this molten, now radioactive debris continues upward, it cools off and solidifies into small particles which gradually fall back to earth. These particles are radioactive fallout.

Fallout travels upward a long way; it takes quite a while for it to fall back down. Even close to ground zero, it will take at least 15 minutes for large (sand to pea sized) pieces of fallout to return to the earth. Smaller pieces, falling farther downwind from ground zero, will take longer, with the very smallest of particles remaining airborne for days, weeks, months, or even years, as they are blown farther and farther away by high altitude winds. Fallout will fall to the east of the attack site, 99 per cent of the time, because it is spread by the higher jet stream, and not seriously affected by the local winds at ground level.



Typical fallout patterns, always spreading to the east of the bomb site.

This lag time that it takes for the fallout to arrive on the ground is a big plus which many are not aware of. Because of this delay effect, areas down range (which will eventually receive dangerous levels of fallout) will remain free of radioactive particles for up to several hours following a nuclear blast. This gives you time to make last minute preparations, travel to a safer location if you're caught away from home during the attack, or even pick up the children from school if they are close by. You'll have at least 15 to 20 minutes, and more likely an hour or more.

Because large particles of fallout will arrive before the smaller ones, you will have no trouble spotting fallout (unless you're so far downwind that only very small particles will be arriving many hours, or even days later). Large fallout will arrive in a variety of forms and colors (due to its make-up, and depending on the material that was at ground zero). White, gray, or black ash, or even popcorn-like particles could be encountered. Regardless of its form, it will be falling from the air, and will appear unnatural. You'll be able to recognize it for what it is. When the fallout starts to arrive, you must get out of it as soon as possible (and ideally should take shelter well before fallout starts to arrive), to avoid absorbing as much radiation as you can. Priority one is: get to shelter!

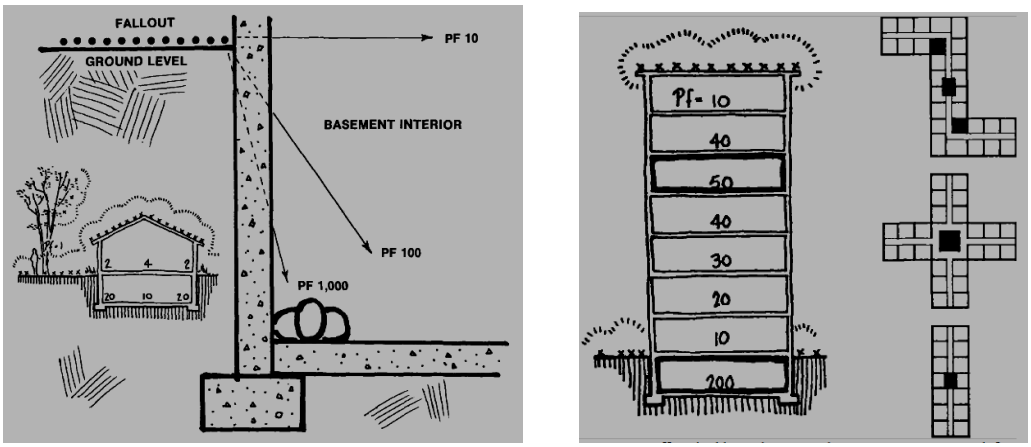

Fallout dust looks much like falling ash from a volcano or major forest fire, and is easy to spot.

If you are forced to be in the open, keep radioactive fallout off your skin and clothing by brushing it off. Cover your head, and use a wet handkerchief over your face to keep from inhaling the dust if you don't have any other sort of dust mask available. Remember: any time spent in the fallout will greatly lower your chances for surviving. Get into a shelter of some sort as soon as you can. If no suitable shelter is anywhere close, you can make your own improvised fallout shelter foxhole, as shown in the quick guide that follows, and its shielding will keep you alive.


Being inside a fallout zone is much like being in a dust storm, but the dust is radioactive.

During the critical time before fallout arrives, it's important that you don't get side-tracked, since you don't know how much time you really have. Do first things first. Let tasks slide that aren't essential. Remember, too, that communications will be disrupted, buildings may be destroyed, and many people will be panicked and/or injured. Don’t wait for help; take action to protect yourself.

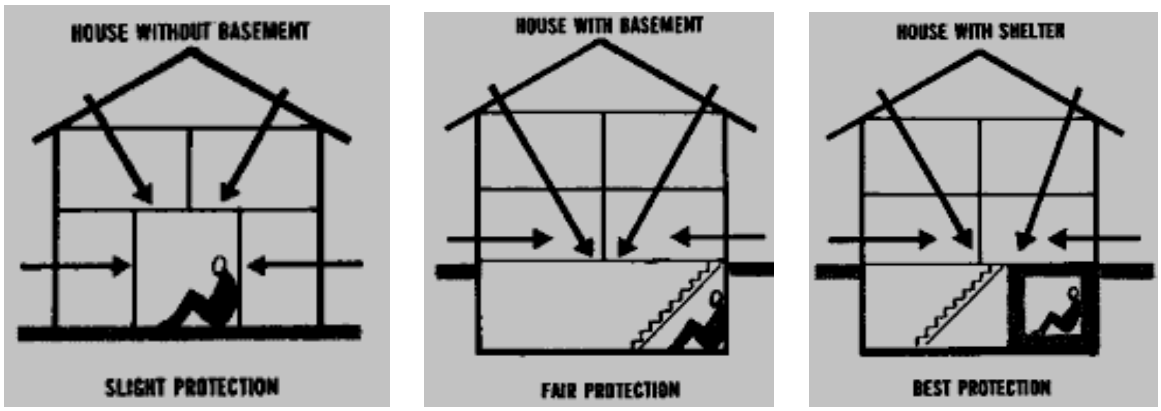
The radioactive fallout from a conventional nuke will harm your body in the same ways as the radioactive dust and smoke from a dirty bomb, as it will have the same Alpha, Beta, and Gamma radiation, so protective gear is the same, for both threats. The damage done by various radiation levels will be the same as discussed in part one, for dirty bombs, so we won't repeat it here. Just remember that 1000 rads from a conventional nuke is just as fatal as 1000 rads from a dirty bomb.



Relative protection factors, of different locations in small and large buildings.

There are four main ways that a conventional nuke differs from a dirty bomb: First, there will be a lot more damage from the bomb blast. In fact, due to damage to buildings, vehicles, and city infrastructure, it may not be possible to evacuate (even though fleeing north or south to escape the fallout cloud would be the safest tactic).

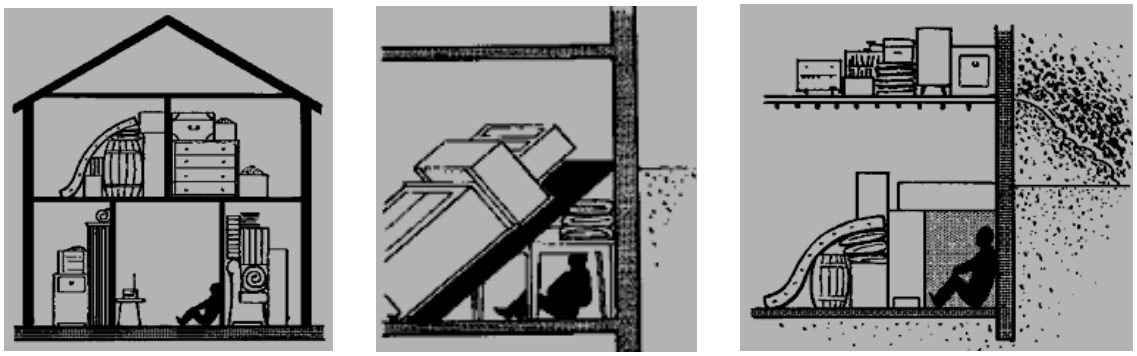
Second, there will be a lot more radioactive material from a conventional nuke, as the dirt sucked up by the fireball is converted into tons and tons of radioactive fallout.



For best radiation protection, get to a basement, and improvise a fallout shelter.

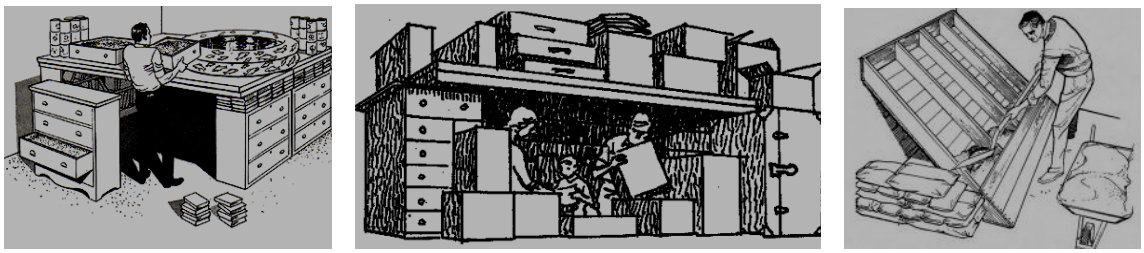
Third, the radioactivity from a conventional nuke will not last nearly as long as radioactivity from dirty bomb materials. The radiation level in the area of densest fallout, while it may be as high as 1000 rads per hour at its peak, will drop off to safe levels (relatively) quickly, so sheltering in place for two or three weeks is a viable option, as long as you can find or create a shelter with adequate radiation shielding.

Fourth is that a conventional nuke produces radioactive iodine, a substance which will dissolve in water and contaminate it. Drinking contaminated water lets the radioactive iodine attack your thyroid gland, which can be permanently damaged (with children, this can stunt their growth). The radioactive iodine decays within a month, so avoid suspect water for a month, and you will be ok.



How to use household items and furniture, to build improvised fallout shelters.

You can topically (on the skin) apply an iodine solution, like tincture of iodine or Betadine, for a protective effect from radioactive iodine. (WARNING: Iodine solutions are poisonous, and must NEVER be swallowed.) For adults, paint 8 ml of a 2 percent tincture of Iodine on the abdomen or forearm each day. For children 3 to 18, but under 150 pounds, only half that amount painted on daily, or 4 ml. For children under 3 but older than a month, half again, or 2 ml. For newborns to 1 month old, half it again, or just 1 ml. (One measuring teaspoon is about 5 ml, if you don't have a medicine dropper graduated in ml.) If your iodine is stronger than 2%, reduce the dosage.



Improvised fallout shelters, with dirt-filled containers (put a mattress on the floor, for comfort).

Absorption through the skin is not as good a dosing method as using potassium iodide tablets, but you probably won't have any of the tablets. Tests show that skin dosing will be effective for most people. (Don't use, if allergic to iodine.)

So if you can't escape the fallout zone, you have to take shelter. But getting indoors alone is not enough protection from fallout, because the radiation (not the fallout dust) can go right through walls, roofs and protective clothing. Even if you manage not to inhale the dust, and keep it off your skin, hair, and clothes, and even if none gets inside your shelter, the radiation penetrating the walls is extremely dangerous, and can injure or kill you, while you think you are safe inside.

The goals of your shelter are: To maximize the distance from the fallout landing outside on the ground and roof, to place sufficient mass between you and the fallout to absorb the radiation, and to make the shelter tolerable to stay in, until the radiation drops to a safe level (in 2 to 3 weeks).

Bottom Line: choose a structure nearby with both the greatest mass and distance already in place between the outside, where the fallout would settle, and the shelter inside. If you have a basement in your home, or at a nearby friends' house that you can use, your best option is probably to fortify and use it, unless you have ready access to a better / deeper structure nearby.

Radioactive fallout from a nuclear explosion, though very dangerous initially, loses its intensity quickly because it is giving off so much energy. For example, fallout emitting gamma ray radiation at a rate of 500 R/hr (50% fatal with one hour of exposure) shortly after an explosion, weakens to only 1/10th as strong 7 hours later. Three days later, it's only 1/100th as strong, or as deadly.

That is good news, because you can survive, if you get into an adequate shelter to wait it out, as it becomes less dangerous with every passing hour. What stops radiation, and thus shields you, is simply putting mass between yourself and the radioactive fallout.

Like body armor stopping bullets, mass stops (absorbs) radiation. The thicker the mass, the more radiation it stops. Also, the denser (heavier) the mass used, the more effective it is, with every inch more you add to your shelter. The thickness in inches needed to cut the radiation down to 1/10th of its initial intensity for common materials is: Steel 3”, concrete 11”, dirt 16”, water 24”, wood 38”.

The thickness required to stop 99% of the radiation is: 5” of steel, 16” of solid brick (or hollow concrete blocks filled with mortar or sand), 2 feet of packed earth (or 3 feet if loose), 3 feet of water. Increasing your distance from the radiation outside also reduces the radiation intensity.

For an expedient last-minute basement shelter, push a heavy table (that you can get under) into the corner of the basement that has the soil highest on the outside. The ground level outside ideally needs to be above the top of the inside shelter. If no heavy table is available, you can take internal doors off their hinges and lay them on supports to create your ‘table’. Then pile any available mass on and around it, such as books, wood, cordwood, bricks, sandbags, heavy furniture, file cabinets, water containers, your food stocks, and boxes and pillow cases full of anything heavy, like earth.

Everything you can pile up around it has mass that will help stop more radiation from penetrating inside - the heavier the better. However, be sure to reinforce your table and supports, so you do not overload it and risk collapse. Leave a small crawl-through entrance, with something solid that can be pulled in after you, to close it. Leave at least two gaps or 6” square air spaces, one high at one end, and one low at the other. Use more if crowded, or in a hotter climate. A small piece of cardboard can help fan fresh air in, if the natural rising warmer air convection current needs an assist in moving the air along. This incoming air won't need to be filtered if the basement has been well sealed up. However, any windows or other openings into the basement should be solidly blocked to assure they stay sealed, and to provide extra shielding for the basement.

With more time and materials, you could even construct a more formal fallout shelter. An effective fallout shelter constructed in a basement may reduce your radiation exposure 100-200 fold. Thus, if the initial radiation intensity outside was 500 R/hr (fatal in one hour), the basement shelter occupants might only experience 5 R/hr, or even less, which is survivable, as the radiation intensity will be decreasing with every passing hour. Adding mass on the floor above your chosen basement corner, and outside against the walls opposite your shelter, can also dramatically increase your shielding protection. Every inch thicker adds up to more life-saving radiation shielding.

As cramped as the small space of a fallout shelter might seem, the vital shielding provided by simply moving some mass into place could be the difference between exposure to a lethal dose of radiation, and your survival. The majority of people requiring any shelter at all will be many miles downwind, and they will not need to stay sheltered for weeks on end.

In fact, most people will only need to stay sheltered full-time for a few days, before they can start coming out briefly to attend to quick essential chores. Later, they can begin spending ever more time out of the shelter daily, only coming back in to sleep. As miserable as it might seem now, you could easily endure that, especially compared to the alternative. It's really not difficult to build an effective fallout shelter, once you are motivated.

Note that government information, for many reasons, may be late, incomplete, or simply wrong. While evacuation (if possible) might be prudent for individuals who act quickly in response to a threat, governments will be slow to call for mass evacuations because of the potential for panic and gridlock. As the recent government calls for duct tape and plastic sheeting led to sold-out stores, anxiety, and derision from the press, there will be great reluctance to issue similar alarms.

If you want to assure that you have adequate food and supplies for your family you must act BEFORE the panic, without first waiting for government instructions that may never come or as urgently as warranted. You alone are ultimately responsible for your own safety.

Filtering the air coming into your basement shelter won't be required. Air does not become radioactive, and if your basement is reasonably snug, there won't be any wind blowing through it to carry the radioactive fallout dust inside. Simply sealing any basement windows and other openings prevents significant fallout from getting inside.

To improve both the radiation shielding inside the basement, and to protect the windows from being broken and letting fallout blow in later, you should cover them all with wood, and then with sandbags or solid masonry blocks or earth, etc. on the outside (and inside too, if possible).

If the basement air gets seriously stale later on, you could reopen a door into the upper floors of the still closed building, or secure a common furnace air filter over an outside air opening leading into your basement.

Regarding fallout contamination, any food or water stored in sealed containers that can later have any fallout dust brushed or rinsed off the outside of the container, will then be safe to use. As long as the fallout dust does not get inside the container, then whatever radiation penetrated the food/water container from the outside does not harm the contents. If you suspect that your clothes have fallout on them, remove your outer clothing before you come inside and leave them outside. A cheap plastic hooded rain poncho that can be easily rinsed off or left outside is very worthwhile. Have water and baby shampoo near the entrance (hose and containers) to wash and thoroughly rinse any exposed skin and hair. Exposure to fallout radiation does not make you radioactive, but you need to assure that you don’t bring any inside.

If any are stricken with radiation sickness, typically nausea, it is (when mild) 100% recoverable and cannot be passed on to others. Before fallout arrives, you might also try to cover your vehicle with a tarp, for easier rinsing off of the fallout dust later, when it’s safe to come out and do so.

When you have selected the best available shelter, turn off all of the utilities to that building. You should have tools, crow bars, and car jacks for digging out later, if required. Also, any building supplies, tools, sheet plastic, staple guns, etc. for plugging any holes from damage. For lighting needs within the shelter have many small LED flashlights or LED head-lamps.

Toilet use will probably have to be via a 5 gallon bucket with a seat borrowed from one of the house bathrooms, if you did not purchase a separate one. Garbage bag liners, hopefully sized for it, should always be used and a full-size and bag lined garbage can should be positioned very close to the shelter entrance for depositing these in when it is safe to do so quickly. Hanging a sheet or blanket will help provide a little privacy as shelter occupants "take their turn". The toilet needs to have its new "deposits" sealed up tight with the plastic liner after each use. Use a secure lid on the bucket and position it near the wall with the outgoing upper air vent.

List OfSupplies To Acquire, If Possible:
Canned goods (pasta, soups, chili, vegetables, fruit, tuna, meats, lots of peanut butter, etc.)
Ready-to-eat foods (pop-tarts, raisins, cheese, granola/energy/protein bars, snack-paks, etc.)
Some perishable foods (breads and fruits like bananas, apples, oranges, grapes, etc.)
Assorted drink mix flavorings (with no cold drinks, just plain water, kids will appreciate it!)
Plenty of potent Multi-Vitamins, Vitamin C, etc.
Iodine solution, like Betadine (16 ounces)- NOT TO BE INGESTED OR SWALLOWED!
Big boxes of dried milk, Big boxes of pancake and biscuit mix & syrup
Largest bags of rice and beans, Largest bags of flour, Largest bags of potatoes
Largest bags quick oats and other grains, Largest bags of macaroni
Large bag of sugar, Large jar of honey, Large 2 gallons or more of cooking oil
Baking powder & baking soda & spice assortment pack
Bottled water (especially if home supplies not secured yet)
Paper or plastic plates/bowls/cups/utensils, and manual can opener
Kitchen matches and disposable lighters
New garbage cans and lots of liner bags (water storage & waste storage)
5 gallon bucket and garbage bags sized for it; Toilet seat for the bucket (use one from the house)
Toilet paper and, if needed, sanitary napkins, diapers, and Baby wipes (saves water)
Flashlights (LED) and more than one portable radio, with extra batteries for all of these.
Bleach (5.25%, without fragrance or soap additives), Alcohol, and Hydrogen Peroxide
Aspirin/Tylenol/Motrin, Pepto Bismol, and Prescription drugs
First aid kits, fire extinguishers, dust mask filter protectors, and plastic hooded rain ponchos
Water filters and other camping type supplies, such as Coleman cook stove and fuel, ammo, etc..
And, of course, rolls of plastic sheeting, duct tape, staple guns, staples, etc.
Miscellaneous supplies that you shouldn't forget: Medical reference books. Hygiene: Pre-moistened towelettes, all-purpose liquid soap, tooth brushes and paste, disposable razors, feminine hygiene items, latex gloves, disinfectant. Toilet/sanitation facilities: You should include chemical toilet facilities in your safe room. Even if the room already has a toilet, there's always the risk that the water supply will be interrupted or contaminated. Don't forget to store toilet tissue rolls. Clothing: At least one change of clothing for each member of the family.Baby needs: Baby formula and plastic bottles, disposable diapers, pre-moistened wet wipes, baby blanket, two or three complete change of baby clothes. Distractions: Bible, Toys for the children, playing cards, pens and paper, books, and games.

A QUICK GUIDE, TO NUCLEAR ATTACK SURVIVAL:

IF NUCLEAR EXPLOSION: Fall flat. Cover eyes, face, and exposed body parts.

DO NOT LOOK at fireball! Remain prone until blast effects are over (or a full two minutes).

AFTER BLAST, FIND SHELTER: Pick as soon as possible, long BEFORE Fallout Arrives!

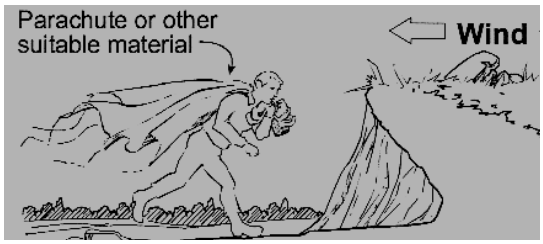
Shelter, by Priority: Cave or Tunnel, Storm Shelter, Culvert, Basement, Empty Building, Foxhole.

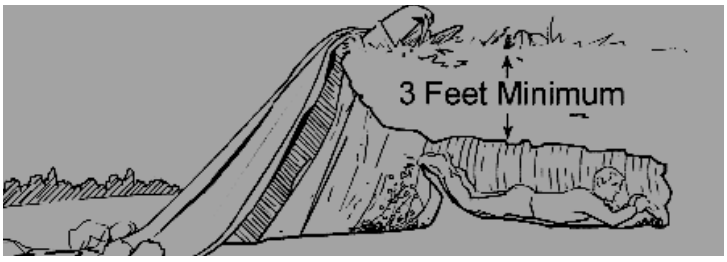
(Radiation protection depends on time exposed, distance, and level of shielding shelter provides.)

Quickly gather any available equipment, water, and food for survival. Avoid public shelters.

Find existing shelter FIRST, then gather supplies and improve shelter.

First seek an existing shelter that can be improved, but if none is available, dig a fallout shelter foxhole as follows: Dig foxhole deep enough for protection, then enlarge it for comfort. Cover the entrance with any available material.



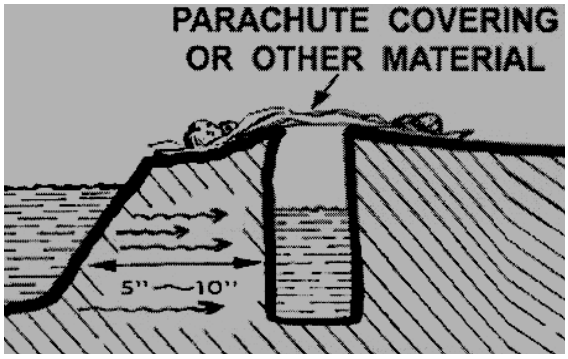


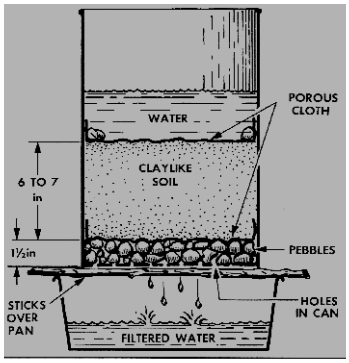
If no other shelter is available, dig an improvised foxhole shelter like this one, then gather supplies and improve shelter. Once you have a shelter, you will have to live in it for up to four weeks, if fallout is present. DO NOT leave shelter, except for time needed to find food and water, or to dump toilet.

A QUICK GUIDE, TO SHELTER SURVIVAL TIPS:

Keep contaminated materials out of shelter.
If Good Weather: Bury contaminated clothing outside of shelter (recover later).
If Bad Weather: Shake strongly or beat with branches. Rinse or shake wet clothing.
HYGIENE: Wash entire body with soap and any water; especially fingernails and hairy parts.
If No Water: Wipe all exposed skin surfaces with clean cloth or uncontaminated soil.
If Fallout: Keep entire body covered. Keep cloth over mouth and nose. Improvise eye goggles.
Leave any contaminated equipment and clothing hidden near shelter (for retrieval later).
Lie down, keep warm, sleep, and rest. DO NOT smoke!

Water: (Allow no more than 30 minutes, on third day after attack, for water procurement.)
Water sources (by priority): Springs, Wells, Pipes, Water Heaters, Snow (from 6 inches down), Streams, Rivers, Lakes, Ponds, Pools. (Make a filtering well next to pond, and get water from it.)
Water treatment: Filtering through earth removes 99% of radioactivity. Boil water, once filtered.





To remove fallout from water, make a filtering well next to water source, or build an improvised drip filter.

Food: Processed foods (canned or packaged) are best; wash and wipe containers before opening.

Animals: Avoid sick or dying animals. Skin carefully, to avoid contaminating the meat. Before cooking, cut meat away from bones, leaving at least 1/8 inch of meat on bone. Discard all the organs. Cook meat until very well done.
(Avoid: Aquatic food sources, Shells of eggs (contents are safe to eat), and Milk from animals.)

Plants (by priority): Plants whose edible parts grow underground (potatoes, turnips, carrots). Wash and remove skin. Edible fruits growing above ground that can be washed and peeled (bananas, apples). Smooth skinned vegetables, fruits, or above ground plants that are not easy to wash off.

General shelter rules: Stay in shelter. Use personal hygiene practices. Remove body waste from shelter. Rest, avoid fatigue. Drink liquids.
If Wounded: Clean injured area. Use antibiotic cream. Cover with clean dressing. Watch for signs of infection. If Burned: Clean affected area. Cover with clean dressing.
If Radiation Sickness (nausea, weakness, fatigue, vomiting, diarrhea, loss of hair, radiation burns): Time is needed to overcome radiation sickness. Rest, drink fluids, eat food. Avoid more exposure.
If Fatalities: Dead bodies must be considered contaminated, and removed from shelter at once/
Use time spent waiting for radiation to decay to weigh options, and pick a rational course of action.