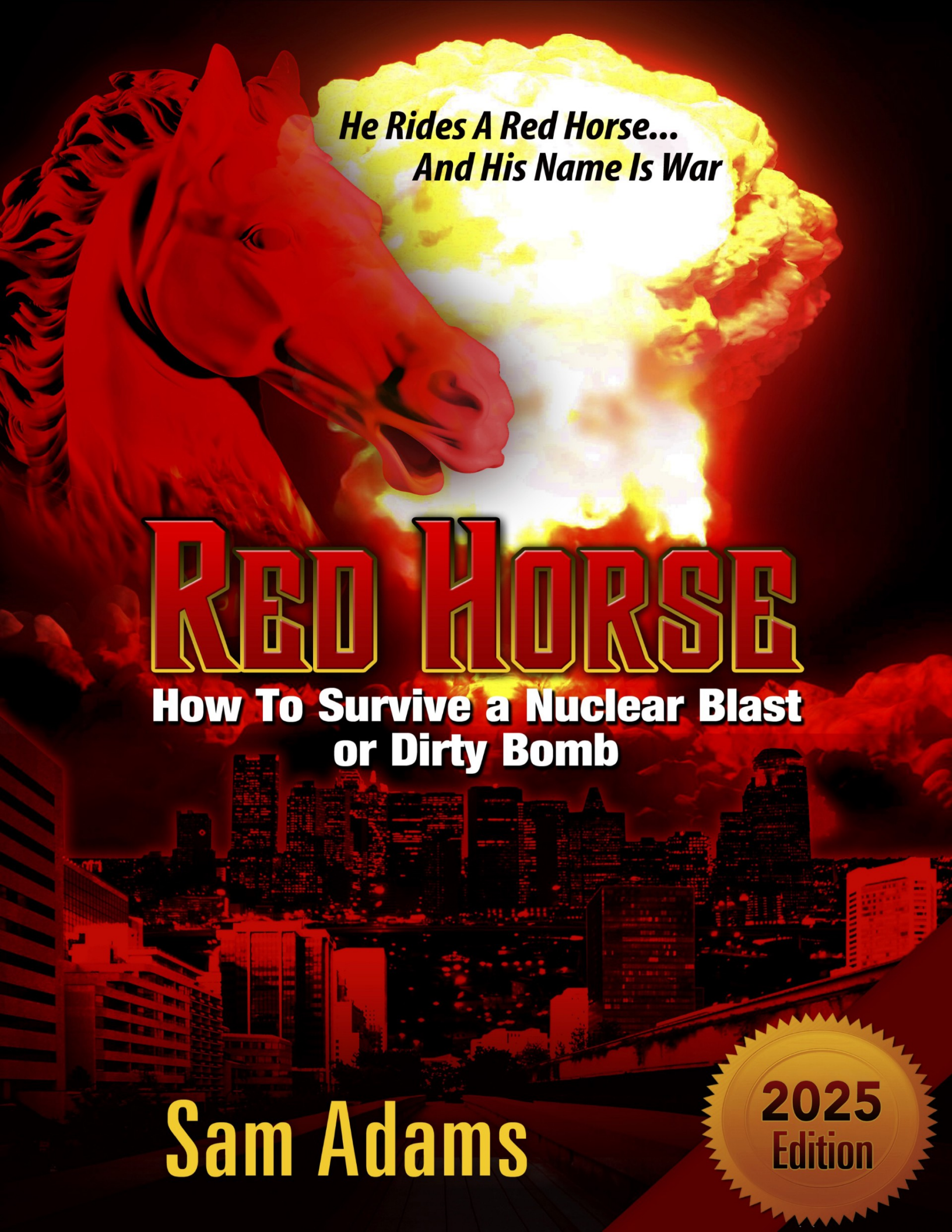

He Rides A Red Horse...
And His Name Is War
RED HORSE
How To Survive a Nuclear Blast
or Dirty Bomb
Sam Adams
2025
Edition

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When he broke the second seal, I heard the second living being say, “Go!” Another horse went out, a red one; and its rider was given the power to take peace away from the earth and make people slaughter each other. He was given a great sword.

Revelation 6:3-4

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AUTHOR'S FOREWORD AND INTRODUCTION

My research has led me to the inescapable conclusion that America – and Americans – are in danger. We have not had a foreign invasion on our soil since the War of 1812. The Japanese attack on Pearl Harbor destroyed our naval shipyard in Hawaii; two airplanes took out the Twin Towers on September 11th, 2001, and another hit the Pentagon on the same day. But by and large, our generation has not seen any significant conflict brought to our shores, not when you're talking about major warfare. We've always taken the fight to the other guy.

This is about to change.

As I write this, the Taliban has broken the truce with Pakistan and is even closer than ever to overwhelming the government forces trying to contain it. What happens if that government falls and the Taliban comes into possession of Pakistan's nuclear weapons? Fanatics that will burn down schools around young girls for religious ideology will not hesitate to detonate a nuclear device in the name of Allah.

Elsewhere in the world, North Korea has just test-detonated two more long-range nuclear missiles. Her aged, infantile leader, Kim Jong Il, is throwing a temper tantrum and flexing his muscles over in Asia. He has threatened to strike South Korea and has negated the 1953 Armistice that ended the Korean War. He knows there's no one in the American government that will stop him. The United Nations is worthless, wringing their hands and wondering how to address the situation. Russia and China just mutter weak admonishments at the U.N Security Council meetings and shake their heads, but secretly they're delighted at the developments.

They should be. They've been funding his weapons program for years. Our failing economy and looming financial collapse leaves us ill-prepared to deal with yet another crisis, yet deal with it we must. If this turns into all-out war, we're going to see the effects of sending our entire manufacturing base overseas.

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We're going to see what closing factory after factory in the United States has done to our ability to mount a major war reminiscent of World War II. With no way to tool up for war-time manufacturing, we're going to be caught with our pants down around our ankles and the toilet paper nowhere in sight.

When I first started writing this book, I imagined it as a comprehensive work on surviving any kind of weapons attack – nuclear, chemical or biological. I didn't realize the amount of information available out there. I didn't realize the amount of information that had never been relayed to me just as a citizen of this country.

I didn't realize the extent of the laziness and incompetence of our government in preparing its citizens for war or how our country is not ready in the least for a major weapons attack on United States soil. Government programs of the 1950s and 1960s, with the goal of educating Americans, have been stopped. Stockpiling of food and emergency supplies has been halted in favor of a "just-in-time" inventory of goods because it costs less to maintain. That's fine, as long as all infrastructure and systems are operating as designed and we haven't been cut off from our oil supply by war. If we have, then we face catastrophic consequences as a society.

It's necessary for the American people to be prepared and that's what this book is aimed at. However, because of the amount of information, I've divided this into a two-part series titled The Horsemen of the Apocalypse – War and Death. This first book, *He Rides a Red Horse...And His Name is War* pertains to nuclear weapons and our response to them. The second book in the series, *He Rides a Pale Horse...And His Name is Death* will discuss chemical and biological weapons. Both books can be read as stand-alone books. The information and strategies I give for surviving any kind of weapons attack will be contained in both volumes. However, there is pertinent information I'll include that may only apply to one type of weapon, so reading both volumes is a must if you want to be as educated as possible on the different weapons systems and what you'll need to do to survive.

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In the introduction to their book *While America Sleeps*, authors Donald Kagan and Frederick W. Kagan state:

"America is in danger. Unless its leaders change their national security policy, the peace and safety its power and influence have ensured since the end of the Cold War will disappear. Already, increasing military weakness and confusion about foreign and defense policy have encouraged the development of powerful hostile states and coalitions that challenge the interests and security of the United States, its allies and friends, and all those with an interest in preserving the general peace." [1]

Until our government acknowledges the risk we face and the need for protecting our country and her citizens, you and I must assume the responsibility of protecting ourselves and our families no matter what policies or laws we may run up against. It is incumbent upon us to survive, to make it to another day. It is our duty and our responsibility, not just to ourselves, but to our families and country as a whole.

As Americans, we have always risen to the challenge when someone rattled our cage. We have spilled the blood of our best and brightest on the battlefield to protect and ensure the peace of our country and the continuation of our lives and freedoms.

We dare not stop now.

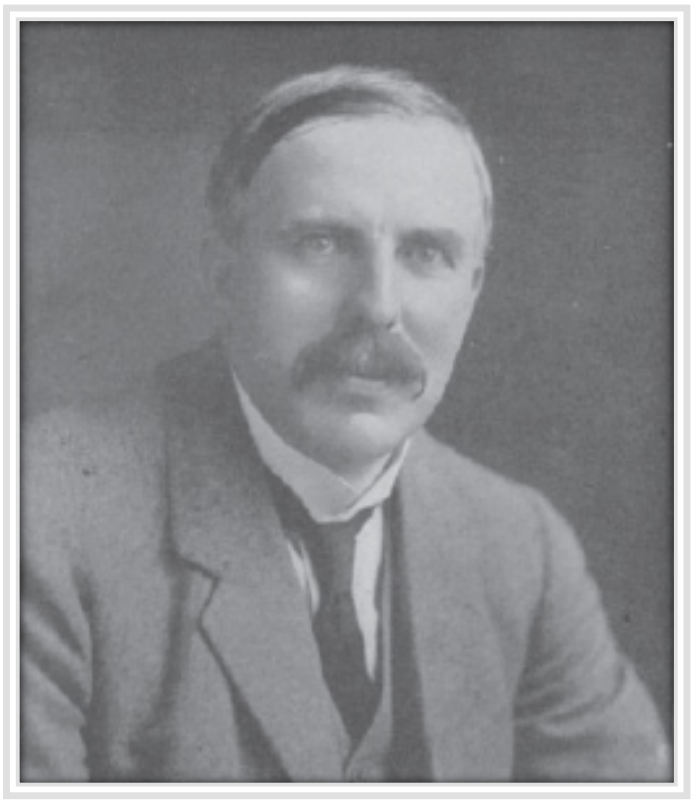
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[1] Donald Kagan and Frederick W. Kagan, While America Sleeps: Self-Delusion, Military Weakness, and the Threat to Peace Today (New York: St. Martin's Press, 2000), 1.

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CHAPTER I
A Brief History of Nuclear Weapons

A young physicist from New Zealand, Ernest Rutherford, is unquestioningly the father of the nuclear age. In 1898, Rutherford discovered that uranium produced two different types of emissions which he named *alpha particles* (a-particles) and *beta particles* (b-particles). However, it was five years later when he observed that the unknown reaction that allowed the a-particle to be emitted from uranium actually released a million times more energy than an ordinary chemical reaction.

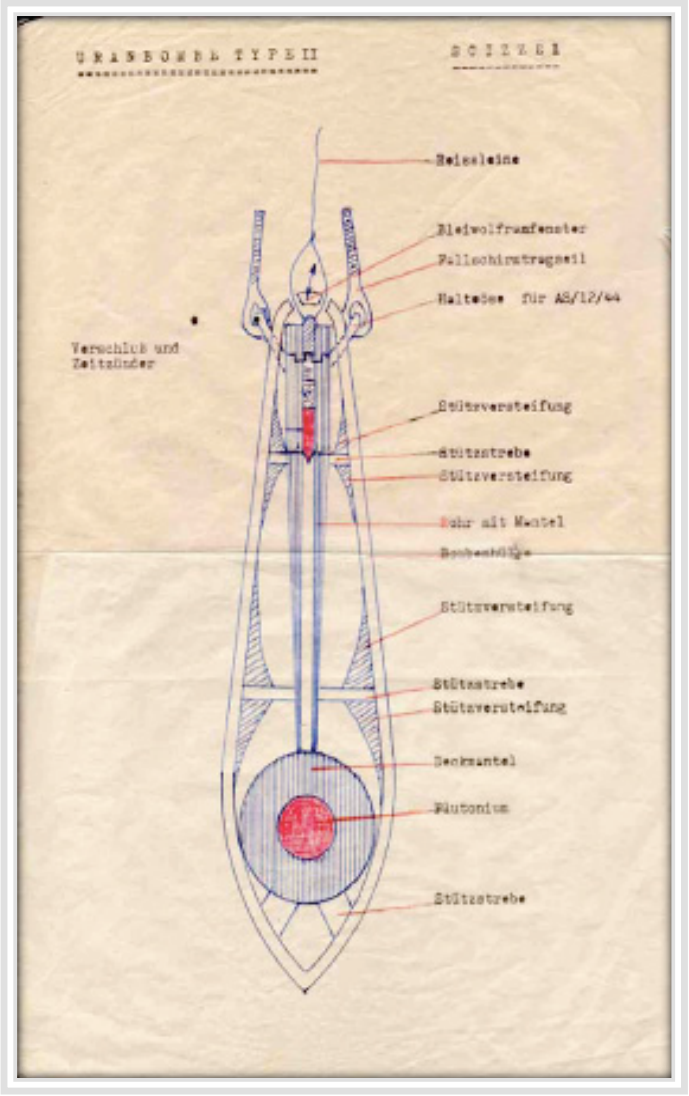


In 1911, he discovered that this a-particle was not really a particle at all, but a helium nucleus that consisted of four particles – two protons and two neutrons. This led him to realize that matter consisted of atoms having a nucleus (his word) made up of protons and neutrons, and with electrons revolving around the nucleus.

Rutherford did not believe that the energy locked in the atom could be deliberately released in a controlled fission. In a 1933 speech to the British Association for the Advancement of Science, Rutherford (now a Nobel laureate in chemistry) dismissed hopes of harnessing nuclear energy as “moonshine.” He was afraid that the release of atomic energy, once begun, would be uncontrollable, detonating all neighboring substances.

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He speculated that if "a proper detonator could be found, it was just conceivable that a wave of atomic disintegration might be started through matter, which would indeed make this old world vanish in smoke."[2]



However, other scientists believed a chain reaction was possible. In fact, the late 1930s became a hotbed of activity when word came from Berlin that the Germans had confirmed that the nucleus of an atom could be split in two. That fissure of the atom, according to Albert Einstein, made the possibility of an atomic weapon a reality. In 1939, two weeks after the invasion of Poland, Hitler threatened Britain with a weapon that had no defense. British intelligence could not confirm whether Hitler had an atomic weapon or not, and Winston Churchill decided to take no chances. He instructed British scientists to start researching the possibility.

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[2] Gerard H. Clarfield and William M. Wiecek *Nuclear America* (New York: Harper and Row Publishers, 1984), 14.

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The nuclear weapons race became one of expediency – the United States and Great Britain could not afford to allow Germany or any of the Axis allies to get their hands on the technology first. American scientists organized the most massive research project the world had ever seen. It was code-named the "Manhattan Project."

Part of this project was a centralized research effort in Chicago, one of the centers of the United State's nuclear research facilities. There, code-named the bland title "Metallurgical Laboratory", its foremost responsibility was to determine if a chain reaction was even possible. On a cold night in Chicago, on December 2, 1942 to be exact, the crude nuclear chain reactor built by these scientists went critical and achieved a chain reaction – sustaining itself for 28 minutes before finally being shut down.

The atomic age trembled on the cusp of fantasy and scientific reality.

Security fears had led to centralizing the program in Los Alamos, New Mexico under the head of the Army Corp of Engineers. While this allowed a giant infusion of money from the government into the program (about $2 billion over the years), it also led to a militaristic atmosphere over the whole of the project.



The civilian scientists, and their wives especially, chafed at the restrictions placed on them. Only four of the scientists were native-born, another source of contention between the Army and the scientific head of the project, Robert Oppenheimer.

Because of the security restrictions, the people of Los Alamos became, for all intents and purposes, non-persons. Children born there could not have the location listed on their birth certificates. No one was allowed to divulge to family or friends where they lived. All incoming

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and outgoing mail was censored by the Army. It was a hard life for everyone involved.

The arms race between the United States and Germany was tense. The Germans had a decided advantage by their lead in nuclear research and their control over some of the richest sources of uranium, the Joachimsthal mines of Bohemia and the Belgium Congo uranium mines.

But they never achieved even a chain reaction, much less a nuclear weapon because their technology remained under-developed. They were long on theory, but short on technology. Money needed to develop the technology instead went to weapons promising short-term payoffs such as the V-1 flying bomb and the V-2 rocket because Hitler was anticipating a quick victory in the war. In addition, German research was never centrally directed. The scientists were never certain if they were researching to produce a bomb, a production reactor, or a propulsion reactor for a submarine.

While there are many controversies over the use of nuclear weapons on Japan to end World War II, and whether or not in 1945, after the surrender of Germany, Japan was actually in negotiations and suing for true peace or refusing to scale down her war efforts, that is beside the point of this book. At the time, military strategists determined that a protracted war with the Japanese empire would lead to the loss of unacceptable levels of American troops and kill unprecedented levels of civilians in an invasion of the Japanese homeland. President Truman gave the order to drop the first atomic bomb on Japan. Even then Japan refused to agree to surrender and a second bomb was dropped. It was only after this second wave that Japan agreed to the terms of unconditional surrender that the Allies mandated.

Of course after that demonstration of power on the part of the United States, the Soviet Union could do nothing less but develop its own nuclear arsenal. Relations became strained between the United States and Russia (in fact they already were before the war's end, but we had a mutual enemy) and soon both sides were engaged in arming themselves with massive stockpiles of nuclear weapons.

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Few who lived through the Cuban missile crisis in 1962 will ever forget the fear they felt watching the two world powers, the United States and Russia, coldly stare each other down, each daring the other side to make the first move.

Fidel Castro had invited Russia to install nuclear missiles on the island in preparation for what he believed would be a United States invasion of the country. The United States could not allow nuclear warheads to be located so close to the mainland, pointed her way. It would be the closet the world had ever come to all out nuclear war.



For years after World War II, a “cold war” existed between the former Union of Soviet Socialist Republics or the U.S.S.R, and the United States. Deterrence was partially based on the MAD principle, or Mutually Assured Destruction. This principle was simple: should either side launch an attack, the other would have enough time to launch a counter-attack, thus ensuring mutual destruction. The effect of this was a proliferation of nuclear weaponry on both sides in order to keep the balance of power.

During the Cold War, the United States government launched the Civil Defense Agency in 1950 by an executive order signed by Harry S Truman. It was supposed to be a way to prepare American civilians for military attack, reduce the public’s fear of a nuclear war, and to deter the Soviet Union from dropping a bomb on the United States in the first place. The Civil Defense Agency was an abysmal failure from the very beginning, and led to more fear and panic in the general population, according to critics, than preparing Americans for nuclear war.

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However, despite massive media and public relations campaigns that included pamphlets passed out in the workplace and educational movies aimed at schoolchildren, United States citizens spent several years in abject fear that the world would dissolve around them in a nuclear conflagration.

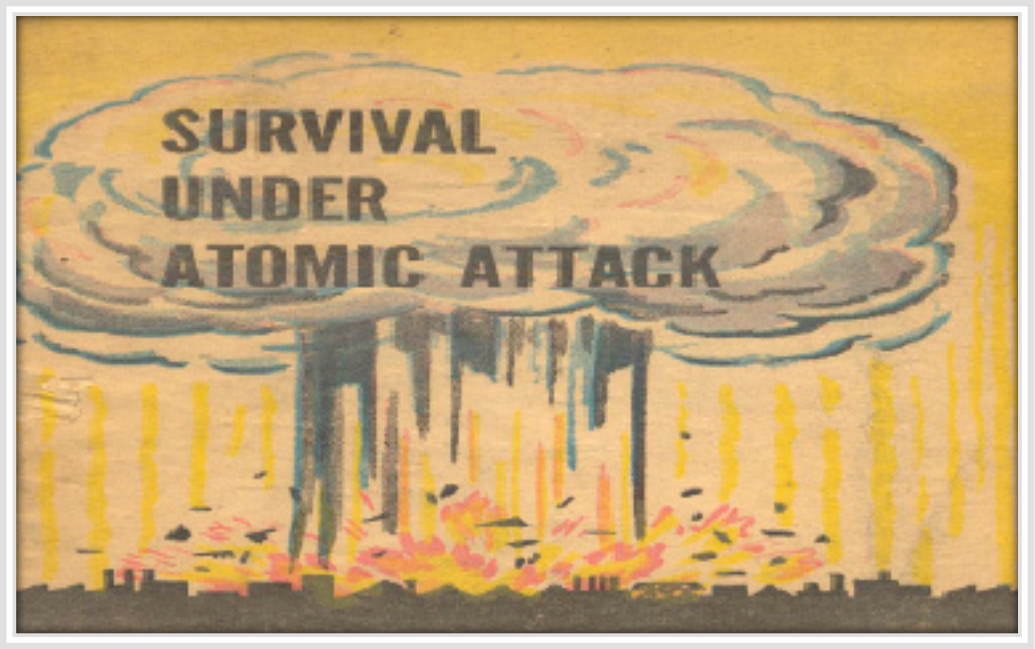


The cartoon “Duck and Cover” put out by the Civil Defense Agency aimed at preparing children for a nuclear attack.

Click on http://www.youtube.com/watch?v=jpOOirmCaFI to see the video clip.

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The civilian population began to see that the propaganda machine wasn't so much about protecting U.S. citizens, but was actually an active defense technique, along with intelligence and weaponry, to deter the Soviets from a first strike. According to Ben Elron[3], it "was critical that the United States maintain the *impression* that its citizens and society would not be easily obliterated by a nuclear war; by reducing the perceived power of the bomb, the U.S. was undermining the significance of nuclear weaponry and thus deterring its use by the Soviet Union."



[3] http://www.docstoc.com/docs/530334/Fear-and-Futility-US-Civil-Defense-during-the-Cold-War

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1951 Civil Defense Agency film about surviving atomic attack.

Click on http://www.youtube.com/watch?v=oajUzkmJGz4
to see the video clip.

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To this day, the United States and the former Soviet Union are the only two countries that have ever admitted to refining the nuclear bomb-making process to incorporate nuclear technology on a miniaturized scale. These nukes, called “suitcase bombs”, have the detonation equivalency of up to one ton of TNT, a small amount compared to the normal standards of a regular-sized nuclear weapon. (The bombs dropped on Hiroshima and Nagasaki had a detonation equivalency of 16 to 21 tons of TNT each.)

Their lethality is not only in the relative ease with which they can be smuggled across borders, but that they can be transported by automobile or on foot and brought as close to the intended target as possible. Following the dissolution of the Soviet Union in the 1990s, more than 100 suitcase nukes have been unaccounted for.

It’s these nuclear weapons, in the hands of who knows what government or terrorist group, which gives us pause. If history has taught us anything, it’s that people with egomaniacal ideas of world dominion will do anything....*anything*....to achieve their objectives. They will, like the cowards they are, kill innocent civilians and destroy entire nations in order to reach their goals.

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CHAPTER 2
WHO CONTROLS THE BUTTON?

ROGUE REGIMES, TERRORISTS AND TYRANTS

According to an editorial in the May 26th, 2009 edition of the *Canadian Free Press*, the Congressional Commission on the Strategic Posture of the United States, a bi-partisan panel, concluded that: "Our military capabilities, both nuclear and conventional, underwrite U.S. security guarantees to our allies, without which many of them would feel enormous pressures to create their own nuclear arsenals....The U.S. deterrent must be both visible and credible, not only to our possible adversaries, but to our allies as well."

Unfortunately our present administration lives in a dream world. The Obama administration is ignoring our aging nuclear weapons and refuses to upgrade or budget money for the upkeep of these nuclear reserves. As part of his idea for creating a nuclear-free world, Obama seems to think that turning a blind eye to our national security and those of our allies by engaging in "diplomacy" is the way to win over terrorists, tyrants, and dictators.



While Russia, China, North Korea and Iran build up and modernize their nuclear reserves, we have a president that wants to sign comprehensive test ban treaties with countries that are years ahead of us in nuclear design and capability, thus limiting our ability to upgrade our weapons. By taking this stand, he not only jeopardizes the security of the United States, he ensures that more countries will try to join the nuclear club as a means of securing their own safety.

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Because of this president, we are in more danger than ever before of a nuclear attack on this country. Instead of showing the world teeth and a backbone, he's rolled over and given them our belly. Who cares what Europe, Russia, China or the Middle East thinks of us if it means we can't defend or protect ourselves? Here are some of the countries and groups we need to keep on eye on in the coming days. There's a lot of sword rattling going on around the world right now, and this president's lack of spine can only make things worse.

Iran

Mahmoud Ahmadinejad, Iran's president, told a news conference on Monday, May 25th, 2009, that Iran's nuclear issue was closed – there would be no more discussion on Iran and her nuclear ambitions. Ahmadinejad has ruled out talks with the U.S. and will only discuss issues within the framework of the International Atomic Energy Agency, the United Nations nuclear watchdog group. Since his election in 2005 as president of Iran, he has made his intentions of Iran becoming a nuclear power very clear.



However, nuclear capability was coming to Iran before the Islamic revolution in 1979. Things came to a grinding halt after the revolution because Ayatollah Khomeini said that nuclear weapons were against the tenets of Islam in that they killed innocent women, children and non-combatants. After the war with Iraq and the chemical bombings of Zardeh in the Kurdistan region of Iran by Iraqi planes, Khomeini changed his mind. There is mounting evidence that the Ayatollah realized that Iran would have to develop nuclear weapons to deter its enemies from future chemical attacks and defend itself in war.

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Even in 2003, two years before the election of Ahmadinejad, representatives of the International Atomic Energy Agency were aware that Iran was purchasing centrifuges from abroad.

However, Iranian representatives insisted that the country's goals for mastering nuclear technology were entirely peaceful. They wanted to use the technology for medical research and the well-being of the Iranian people.

But revelations from Libyan archives in 2003 proved that Iran's intentions were less than benign when it came to developing nuclear weapons.



In 2004, a laptop computer belonging to an Iranian scientist was discovered. It contained the plans and blueprints for a uranium enrichment facility and a small nuclear warhead. It held over a thousand pages of computer simulations and calculations for experiments that appeared to be part of a program to design a nuclear warhead that was compatible with Iran's Shahab family of missiles.

Between 2006 and 2008, a Chinese national used New York banks to transfer funds and materials through four bogus import-export companies into Iran. Shipments from China to Iran included: 33,000 pounds of specialized aluminum alloy that is used almost exclusively in long-range missile production; 66,000 pounds of tungsten copper plate, used in missile guidance systems; and 53,900

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pounds of maraging steel rods, a super hard metal used in uranium enrichment and to make the casings for nuclear bombs.

There are a few things certain with Iran's race to acquire nuclear weapons: they want to be in a position to be able to wipe Israel off the face of the map, to inflict massive damage to U.S. interests abroad and at home, and to set up an Islamic empire in the Middle East. There is no compromise in this.

To the Iranian religious government, which reigns supreme in that country, the United States is the "Big Satan" and Israel is the "Little Satan." It is incumbent upon them to remove as much of the perceived threat as possible.

Ahmadinejad is but the puppet for the Ayatollah Ali Khamenei's wishes, albeit a very vocal one. Regardless of who wins the presidential election there in the next few months, Iran's path is laid out. Unless Israel decides to buck world opinion and destroy Iran's nuclear capability, Iran will become another nation with nuclear weapons.

Pakistan

As Pakistan is engulfed in chaos from its insurgent factions – al Qaeda and the Taliban – the threat to the United States rises. The Taliban has come within 60



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miles of the capital city of Pakistan, Islamabad. Both al Qaeda and the Taliban originated in Pakistan, and both groups have declared themselves blood enemies of the U.S. Al Qaeda has declared its intentions to kill between four and ten million Americas as payback for United States policies in the Middle East.

Our government has recognized the seriousness of the threat to Pakistan, but doesn't quite seem to know what to do about it. They have provided the country with $100 million dollars to secure its nuclear arms but it's not clear how Pakistan spent the money.

They do know that Pakistan is rapidly expanding its nuclear arsenal, which is frustrating to U.S. officials who are trying to make sure that Pakistan's present 80 to 100 nuclear warheads don't wind up in the hands of Islamic militants.

Pakistan is pumping out vast quantities of weapons-grade uranium and will be producing weapons-grade plutonium in the near future for a new generation of weapons. According to Bruce Riedel of the Brookings Institution, Pakistan has more terrorists per square mile than any place else on earth, and its nuclear weapons program is growing faster than any place on earth. The two don't seem to be a compatible mix.

Pakistan is one of three nuclear countries – along with India and Israel – that never signed the Nuclear Nonproliferation Treaty. North Korea withdrew from the Treaty in 2003.

India

India has had nuclear capabilities for years. We don't normally look on India as a nation that's in danger of civil unrest and yet that is exactly where she's at today. Her increasing Muslim population, fueled by terror cells in neighboring Pakistan and her militant Hindu population are the source of constant clashes. Terrorist strikes like the one in Mumbai in November of 2008 only pit these groups against each other in increasing numbers.

India and Pakistan have had a strained relationship between them ever since the British Empire partitioned the two countries in 1947. Her nuclear weapons testing in 1998 caused Pakistan to vamp up a nuclear weapons program. There are

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several areas of land disputes between India, Pakistan and China. There is extensive overpopulation and poverty in India, along with a lot of widespread corruption.

While India has said it will never strike first in a nuclear confrontation, it refuses to sign on to the Nuclear Nonproliferation Treaty citing national security concerns.

North Korea

As of today, Kim Jong Il has launched another nuclear test detonation that created an earthquake measuring magnitude 4.5 in Kilju county in the country's north-east. This test is rattling politicians all around the world. Declaring an end to the 1953 Armistice that brought the Korean War to a close, he has threatened to attack any South Korean or American ship that tries to intercept his vessels. He has the world in a stand-off, with red-faced politicians shaking their fingers at him.

He's intimidated, I'm sure.



North Korea began pursuing nuclear weapons as early as the mid-50s, according to archives from former communist allies of the country. Throughout the years, it has sought treaties with Russia, China, and the United States, but the United States insisted the format be six-party talks that included Russia, China, Japan, and South Korea. North Korea refused. In 1994, President Clinton was prepared to lead a multi-national coalition to destroy North Korea's nuclear facility and impose sanctions on them if they refused to halt their nuclear weapons program. However, he lost the initiative when former-President Jimmy Carter took it upon himself to negotiate diplomatic talks

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with Kim Il Sung. Instead of throwing Carter into a prison cell for impersonating a government official, Clinton agreed to the lopsided negotiations. The treaty was abandoned when George W. Bush came into office.

In 2006, when North Korea detonated its first nuclear weapon, the world jumped on its soapbox and did a lot of posturing, but little else. North Korea threatened to start selling nuclear material to anyone who asked if the United States refused one-on-one talks with them. Now we're in 2009 with a new administration and North Korea is feeling even cockier.

According to Forbes magazine, "A series of actions taken by the Obama administration have created an impression in Iran, the "Af-Pak" region, China and North Korea that Obama does not have the political will to retaliate decisively to acts that are detrimental to U.S. interests, and to international peace and security."[4]

Those actions include the pathetic stance our president has toward Iran; a reluctance to support the security interests of Israel; its over-willingness to court the Chinese in shoring up our economy and financial sector and investing in treasury bonds; and its soft stand toward Pakistan despite its continued support of anti-India terrorist groups and inaction against the Taliban.

According to the National Terror Alert website, intelligence agencies have information that North Korea has assembled five to eight nuclear warheads for its medium-range Rodong missiles capable of targeting Japan.

China has set the table quite well for itself in this crisis. It has neutered any effective involvement of the United States by financially investing in its runaway debt and buying up large pockets of United States real estate. According to Gordon G. Chang, "Today, China supplies about 90% of North Korea's oil, 80% of its consumer goods and 45% of its food. Beijing is Pyongyang's only formal military ally and its primary backer in the United Nations Security Council and

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[4] Raman, Bahukutumbi. 2009. Is Obama Another Jimmy Carter? *Forbes, Inc.* May 25.

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other diplomatic forums. If it weren't for the Chinese, there would be no North Korean missile program, no North Korean nuclear program and no North Korea."[5]

Terrorist Cells and Organizations

Former Russian National Security Adviser Alexander Lebed claimed that 100 of 250 suitcase-sized nuclear bombs were missing and no longer in the control of the Russian military in a CBS "60 Minutes" interview on Sept. 7, 1997. This created a world-wide stir. Said to measure 24-by-16-by-8 inches, each suitcase bomb was capable of killing up to 100,000 people if detonated in a major U.S. city during business hours.

Supposedly these weapons have a small yield, in the range of one kiloton, and have a short lifespan. Key components of these bombs are required to be replaced every six months.



In January 24, 2000 testimony before a congressional hearing on Soviet espionage, Stanislav Lunev, a former Soviet colonel who defected to the United States in 1992 after working in this country for over 10 years as an intelligence operative, claimed to have gotten from the former Soviet Union several suitcase bombs that were to be used against United States political and military leaders. These bombs had been pre-positioned and were in hiding until needed.

In a November 2001 interview with the Australian Broadcasting Corporation, Osama bin Laden's deputy, Ayman al-Zawahri claimed that al-Qaeda had

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[5] Chang, Gordon G. 2009. We Have A Chinese Problem, Not A North Korean One. *Forbes, Inc.* May 25.

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purchased suitcase nuclear bombs on the black market. He said if you had $30 million dollars and contact with the Asian black market, you could find a number of disgruntled Soviet scientists willing to deal.

Because of the amorphous nature of terrorist organizations, it's hard to pin down exactly what weaponry they possess or where they'll strike next. What's even worse for the country are our large porous borders. There are long stretches of our borders that are unpatrolled and unpopulated, except by an occasional aircraft. We have between nine and twelve million illegal aliens living in the United States today.

In 2004, the FBI said there were Al-Qaeda sleeper cells in approximately 40 states, just waiting for their money and orders to launch another attack. Many Muslim think-tank groups and citizen's activist groups in the United States have suspicious funding and connections, but because of legal barriers we still can't root them out. Some of the tools allowed by the Patriot Act to ferret out terrorists and their organizations have been ruled unconstitutional by the courts.

We sometimes find ourselves wondering what in the world is going on when terrorists are given such leeway in constitutional rights, but our own liberties as citizens are stripped away. We have to be careful not to hurt Mohammed's feelings or civil rights, but love your country, be a veteran, or just sport a Ron Paul bumper sticker, and all of a sudden you're on Homeland Security's watch list. Does anyone else see something wrong with this picture?

All in all, there's very little that the average citizen can do to affect the world's political and military stage. It was thought that by ending the Cold War, further proliferation of weapons of mass destruction would stop. And while larger, more stable governments may renew commitments to decrease their nuclear arsenals, rogue states and terrorists feel no such compunction. Tellingly, on February 24, 1993, R. James Woolsey, Director of Central Intelligence, testified before the Senate Committee on Governmental Affairs, stating there were more than 25 countries that may have or may be developing weapons of mass destruction and their delivery systems. That was sixteen years ago and a lot has changed on the political landscape, none of it for the better. All we can do is secure what little bit is ours. Suppose that someone does fire off a nuclear weapon. Just for a moment imagine that you're in a targeted city and the emergency klaxons are

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pealing all around you. From the moment you realize a bomb is in the vicinity until it's over with, what can you expect? Is there any way to hide? Is there any way to survive?

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CHAPTER 3
Nuclear Weapons Today

Weapons of mass destruction are defined as ones "that can kill large numbers of humans and/or cause great damage to man-made structures (e.g. buildings), natural structures (e.g. mountains), or the biosphere in general."[6] While mass killing of humans is not new to warfare or this century, weapons of mass destruction compress the time and effort needed to kill. They come in three distinct types – nuclear, chemical, and biological. Some add a fourth category – radiological – but for our purposes here, this category is combined and discussed under nuclear weapons. The other categories – chemical and biological – are discussed in the second book of this series, *He Rides a Pale Horse...And His Name is Death.*

For a weapon to be considered effective and usable, it must have four attributes:[7]

1. Economically viable for the user
2. Capable of reaching its intended target
3. Cause limited collateral damage – it can't kill both sides
4. Result in the desired outcome

"Nuclear weapons at high yields (hundreds of kilotons or higher) are the most potent means of mass destruction. In addition to killing tens or hundreds of thousands of people or more, a nuclear weapon can obliterate the entire physical

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[6] http://en.wikipedia.org/wiki/Weapons_of_mass_destruction

[7] Michael T. Osterholm, Ph.D., M.P.H. and John Schwartz *Living Terrors: What America Needs to Know to Survive the Coming Bioterrorist Catastrophe* (New York: Delacorte Press, 2000), 7.

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infrastructure of a large city and contaminate a much larger area with radioactive fallout."[8]

However, despite a nuclear weapon's potential for mass destruction, it's actually in the middle of the three weapons types. It isn't economically attainable for the average terrorist with nothing but jihad and 70 virgins on his mind. You have to have a country's massive resources, a factory large enough to produce the fissile material, and millions of dollars in equipment and people to produce a nuclear weapon. The fissile material – plutonium and/or enriched uranium – is very expensive and hard to come by, and is the easiest to control by limiting international technology transfers. The cheapest production cost of one nuclear weapon is about $200 million dollars.

Another thing about a nuclear weapon is that the impact is immediate...and then it's over with. Yes, there is radioactivity. Yes, there is fallout. There's mass destruction of buildings and even the environment, but you can begin almost immediately to rebuild from a nuclear detonation. A chemical or biological agent is much more perverse. It kills with the victim having no knowledge about what's going on. Biological weapons have not been used in any recent theater of war with the exception of use by the Japanese during World War II. Chemical weapons, on the other hand, keep rearing their ugly heads time and time again.

There were two basic designs of atomic weapon when they were developed in 1945: the gun-assembly design (the design used in the bomb "Little Boy" that was dropped on Hiroshima at the end of World War II) and the implosion design (the design used in the bomb "Fat Man" that was dropped on Nagasaki). In the gun-assembly design, a conventional explosion propels two or more sub-critical masses into one supercritical mass inside a high-strength gun barrel-like container. This approach is relatively slow and is practical only with highly-enriched uranium. This design is also dangerous compared to modern nuclear weapons because of the risk of accidental detonation.

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[8] United States Congress, Office of Technology Assessment, *Proliferation of Weapons of Mass Destruction: Assessing the Risks,* OTA-ISC-559 (Washington, DC: U.S. Government Printing Office, August 1993), 7.

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In the implosion design, a shell of chemical high explosive surrounds the nuclear material. At implosion, the nuclear material is rapidly and uniformly compressed to form a supercritical mass. This approach will work with both uranium and plutonium, creates a much faster chain reaction, and uses much less material than the traditional atomic bomb. The hydrogen bomb is a nuclear weapon design that is used in multi-megaton-range thermonuclear weapons. It was developed in the early 1950s by Hungarian-born physicist Edward Teller and Polish-born mathematician Stanislaw Ulam. It uses a fission bomb (atomic bomb) "trigger" placed near the fusible nuclear core.

High levels of electromagnetic radiation from the first stage atomic bomb blast compress the nuclear material in the secondary unit into supercritical mass. The most powerful bomb of this classification ever tested was a Soviet 50-megaton model.

The three effects of a nuclear weapon are blast, heat, and radiation. The energy produced by a nuclear explosion is millions of times more powerful per gram than conventional explosives. Blast effect includes shock waves, overpressure, and intense winds. The temperatures reached briefly upon detonation are in the tens of millions of degrees compared to the few thousand degrees of a conventional weapon. The heat is released in the form of infrared and visible radiation which, under the right conditions, can cause firestorms in cities well beyond the area of heavy blast damage.

A ground or surface burst creates the maximum physical damage at and below the ground and contaminates a large area downwind with radioactive fallout. An air burst distributes the heat and immediate radiation effects more widely. A nuclear weapon detonated at a high altitude can also create a powerful pulse of radio waves – called an electromagnetic pulse – which can seriously damage electronic equipment. The EMP affect can be a threat to systems as far as a thousand miles away from initial impact. However, at yields below a megaton, shock and blast are the two primary means of damaging the target.

The power or yield of the bomb determines how much damage is caused from these effects. Those people and structures close enough to the blast center would be instantly vaporized. Farther from the center, you'd be consumed by fire. Severe burns and radiation exposure would ensue farther out from the blast

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center, with death occurring within days or weeks. Increasing the distance from the point of detonation reduces the effects of the initial blast.

Another type of bomb - dirty bombs - is not classified as a true nuclear weapon. These dirty bombs use conventional explosives to disperse radiation. Detonating these devices causes radiation exposure and radiation sickness. While the number of casualties of a dirty bomb attack would be relatively small, the panic and widespread fear if used in multiple, simultaneous explosions would paralyze the nation. However, some experts say that dirty bombs would not really be the weapon of choice for terrorists because the collateral damage would not be enough.

In a March 29, 2009 article on Newsmax.com by Newt Gingrich, the former Speaker of the House and leader of the Republican revolution in Congress in the early 90s, states that the United States sits with a sword of Damocles hanging over her head, a threat that is ignored to our peril. On February 3rd, Iran launched a communications satellite into orbit. North Korea attempted to do the same in April, but the satellite missed its orbit and fell into the Pacific Ocean. The satellites themselves are not the problem. The problem is that any rocket that can carry a satellite into orbit can send a nuclear warhead over any location on earth in less than 45 minutes. Had North Korea's missile launch been successful, then not only Japan, but Hawaii and Alaska would have been within nuclear missile range of that country and her demented dictator.

According to Gingrich, "One small nuclear weapon, delivered by an ICBM can destroy the United States by maximizing the effect of the resultant electromagnetic pulse upon detonation."[9] As has been discussed, an electromagnetic pulse is created when a nuclear bomb is detonated above the earth's atmosphere. This pulse moves at the speed of light and will short-circuit all electrical equipment, power grids, and delicate electronics. In fact, three weapons exploding above the United States would wipe out all power grids, communications, and transportation networks.

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[9] Gingrich, Newt and Forstchen, William. 2009. A Single Nuke Could Destroy America *Newsmax, Inc.* March 29.

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In 2001, the Commission to Assess the Threat to the United States from Electromagnetic Pulse was established. Their duties were to evaluate:

1. The nature and magnitude of potential high-altitude EMP threats to the United States from all potentially hostile states or non-state actors that have or could acquire nuclear weapons and ballistic missiles enabling them to perform a high-altitude EMP attack against the United States within the next 15 years;

2. The vulnerability of United States military and especially civilian systems to an EMP attack, giving special attention to vulnerability of the civilian infrastructure as a matter of emergency preparedness;

3. The capability of the United States to repair and recover from damage inflicted on United States military and civilian systems by an EMP attack; and

4. The feasibility and cost of hardening select military and civilian systems against EMP attack.[10]

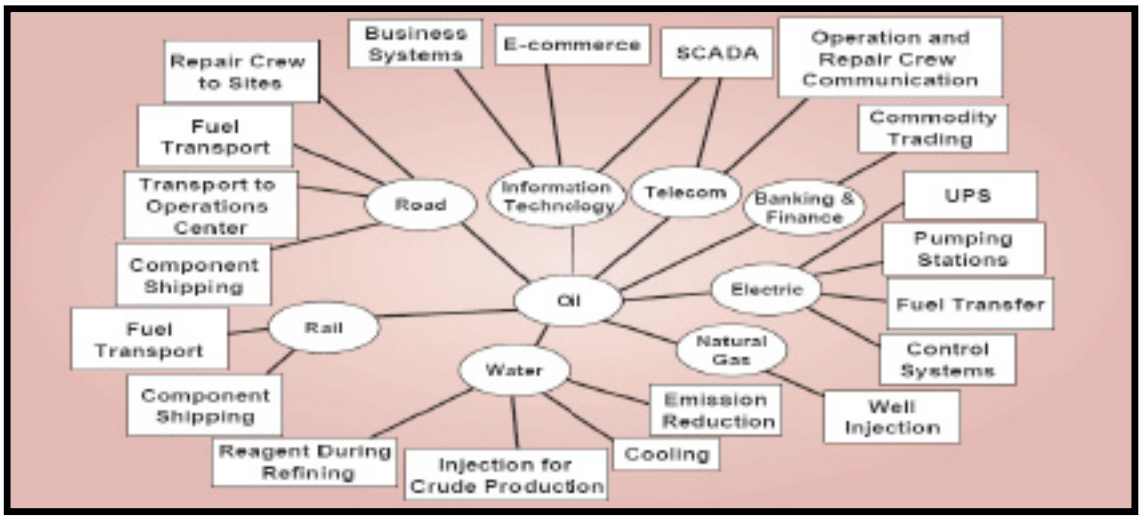
This commission was reestablished under the National Defense Authorization Act of 2006 to continue to monitor, investigate, and make recommendations to Congress on threats it perceives to the United States. Their 2008 report was sobering, to say the least. Systems that you don't even think about would be vulnerable to an EMP attack. Look at refineries for example. Refineries have been reducing personnel in favor of remote control capability. U.S. refineries are critically dependent on the computers and integrated circuitry associated with process control. Should an EMP take out the computer system of an oil refinery, they would have no choice but to shut down. Our space stations and satellites would be subject to the irradiation of an electromagnetic pulse. The interdependency of our infrastructure would mean a critical collapse of our economic and financial markets. The following page shows the interdependence that is in our oil and natural gas infrastructures.

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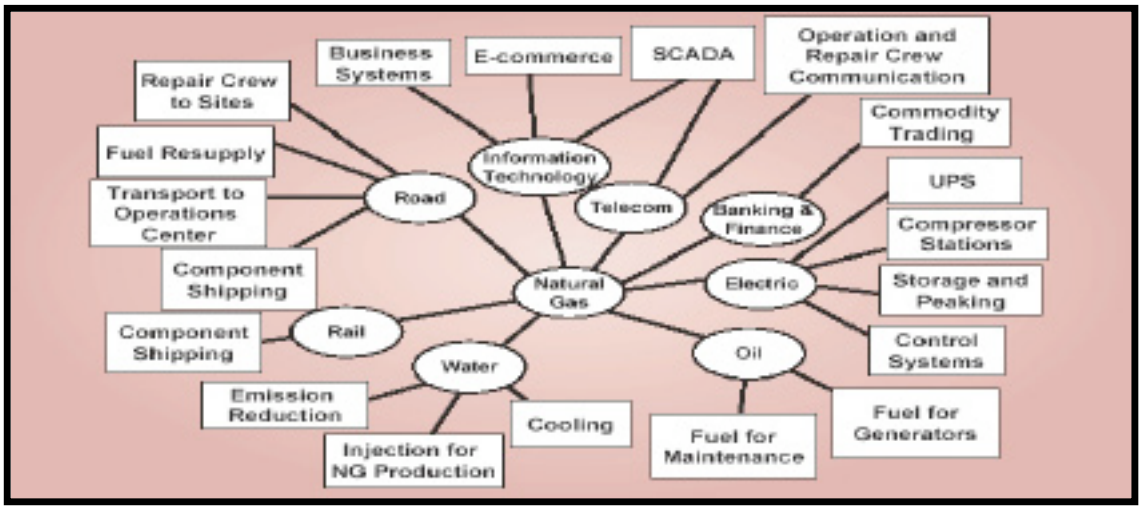
[10] http://www.empcommission.org/

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Examples of Oil Interdependencies



Examples of Natural Gas Interdependencies



The transportation industry is increasingly reliant on information technologies. This industry is not just trucking, but railways and ships as well. As these industries rely more and more on electronic computer systems, the more vulnerable they are to the effects of an electromagnetic pulse. To site an example from the Commission's study, coal for coal-fired power plants accounts for 44 percent of Class I railroad tonnage. Even if a power plant was able to overcome the EMP effects, it's probable that there would be no fuel to fire the plants because of the disruption in the transportation system.

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Nearly 80% of all manufactured goods wind up in a truck, going from manufacturer to consumer. Modern automobiles have over 100 microprocessors that control all aspects of vehicle function. Vehicles that would be disabled from an EMP attack while operating on the road would be expected to cause accidents. Even a small number of disabled vehicles or accidents can cause debilitating traffic jams, especially in our metropolitan areas. One eighteen-wheeler careening out of control would cause a devastating chain reaction of crashes on highways and interstates.

However, it's not just what the transportation industry is hauling around the country that would be a concern.

The controls that switch tracks for oncoming train traffic, the computers that operate our locks and dams, the power needed for the traffic signals in normal automotive traffic – all these and more would be affected by an EMP pulse.

At the end of 2002, there were 72 United States certified airline carriers that employed 642,000 pilots, flight attendants, mechanics, and other workers. These airlines carried 560 million domestic passengers during 2001.

In addition, these airlines carry freight as well. Commercial air freight shipments accounted for 22 billion ton-miles in 2001 according the Bureau of Transportation Statistics. The airplanes and the air traffic control systems are all controlled electronically. While there are EMP safeties and redundant back-ups of all critical systems, air traffic would be grounded until all systems could be repaired.

Our food supply is especially dependent on electronics. Vegetables, fruits and meats are stored in refrigerated warehouses. Supermarkets usually carry only a three-day supply of stock and need to be re-supplied continuously from regional warehouses. Transportation is the weakest link in the food supply chain. Blackouts from storms and mechanical failures in our power grids have on numerous occasions caused massive failure of supermarket refrigeration systems. These disruptions have resulted in most all the perishable foods spoiling, thus creating food shortages for days or weeks. These storm and accident induced blackouts are minor compared to the consequences of an EMP attack.

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Gingrich asserts in his Newsmax article that “Far too many timid or uninformed sources maintain that a single launch of a missile poses no true threat to the United States, given our retaliatory power. A reality check is in order...”

Our 21st century lifestyles have led us to abandon the common knowledge and self-sufficiency of our ancestors. Ordinary knowledge and information that was well-known just 80 years ago has been let go in favor of modern conveniences. Should an attack on our country destroy its infrastructure, would you perish from your lack of wisdom and knowledge?

You don’t have to, but there’s not another moment to waste. Your cram-course education in self-reliance needs to start now.

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CHAPTER 4
BEFORE, DURING, AND AFTER A NUCLEAR ATTACK

The strategies you need to employ to survive a nuclear attack will partly depend on the circumstances, the attacking party, and the type of weapon used in the attack. But even before a nuclear attack you can put together a stockpile of supplies that will last you from 2 to 4 weeks. You can put together a fall-out shelter in your basement or find a designated fallout shelter in your community. It's not a matter of if we'll be the recipients of a nuclear attack, it's when. Do everything you can to prepare now.

If an attack from a hostile nation is imminent, and you live or work near a potential target, then you'll need to evacuate. Protection from radioactive fallout would require that you take shelter in an underground area, or in the middle of a large building.

In general, potential targets include:

- Strategic missile sites and military bases.
- Centers of government such as Washington, DC, and state capitals.
- Important transportation and communication centers.
- Manufacturing, industrial, technology and financial centers.
- Petroleum refineries, electrical power plants and chemical plants.
- Major ports and airfields.

BEFORE THE ATTACK

It's amazing how the information from the government about how to be prepared for a nuclear attack has changed little over the last 60 years. An article from *Time Magazine* in its August 21, 1950 edition titled "Atomic ABCs" has basically the same guidelines and information that the FEMA website does today. The bottom line is that if you're in the epicenter of a nuclear blast, there's not anything you can do. You're going to be vaporized. 85% or more of the people in a half-mile

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radius from the blast will die instantly from the shock wave from the detonation, heat, or falling buildings. Others will get a lethal dose of radiation.

Up to three-quarters of a mile away, 50% or more of the people exposed will die from radiation poisoning – some instantly, some not until weeks later. Many of those within a mile and a quarter will die or be horribly burned from the heat of the bomb. However, following the steps below can help you prepare yourself and your family if you find yourself out of the center of the target area.[11]

1. Learn the warning signals and all sources of warning used in your community. Make sure you know what the signals are, what they mean, how they will be used, and what you should do if you hear them.

2. Assemble and maintain a disaster supply kit with food, water, medications, fuel and personal items adequate for 2 to 4 weeks - the more the better.

3. Find out what public buildings in your community may have been designated as fallout shelters. It may have been years ago, but start there, and learn which buildings are still in use and could be designated as shelters again.

    - Call your local emergency management office.

    - Look for yellow and black fallout shelter signs on public buildings. NOTE: With the end of the Cold War, many of the signs have been removed from the buildings previously designated.

    - If no noticeable or official designations have been made, make your own list of potential shelters near your home, workplace and school. These could include basements, or the windowless center area of middle floors in high-rise buildings, as well as subways and tunnels.

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[11] Information provided from the government website: http://pueblo.gsa.gov/cic_text/family/disaster-guide/nuclear.htm

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- Give your household clear instructions about where fallout shelters are located and what actions to take in case of attack.

4. If you live in an apartment building or high-rise, talk to the manager about the safest place in the building to go to for shelter. Talk with the manager about making provisions for the building occupants until it is safe to go out.

5. There are few public shelters in many suburban and rural areas. If you are considering building a fallout shelter at home, keep the following in mind:

   - A basement, or any underground area, is the best place to shelter from fallout. Often, few major changes are needed, especially if the structure has two or more stories and the basement, or one corner of it, is below ground.

   - Fallout shelters can be used for storage during non-emergency periods, but only store things there that can be very quickly removed. (When they are removed, dense, heavy items may be used to add to the shielding.)

   - All the items you will need for your stay need not be stocked inside the shelter itself, but can be stored elsewhere, as long as you can move them quickly to the shelter. However, things happen in a moment and you may not have time to move a lot of stuff. Keep the majority of your supplies ready in the shelter itself.

   - You'll be in your shelter for several weeks, in close proximity to the other members of your family. It'll be easy to let the confinement get to you, especially if you have small children that really don't understand (or teenagers who refuse to!). Among your supplies include board or card games, or items that will keep young children occupied. Reading will help pass the time, and books on self-reliance and rebuilding after the attack will hold invaluable information for you.

6. Learn about your community's evacuation plans. Such plans may include evacuation routes, relocation sites, how the public will be notified and transportation options for people who do not own cars and those who have

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special needs. It's likely that during and after a nuclear attack, martial law will probably be declared.

- Be careful about taking any items to a community relocation center that you don't want confiscated. For information about securing weapons and other items of importance to your survival, see our book Hide Your Guns at http://www.hideyourguns.com.

7. Acquire other emergency preparedness booklets that you may need. (We carry all different types of publications that cover a range of topics at the Powerful Living LLC website. If you're reading the eBook version, click on the following link http://www.powerfulliving.com) There are many publications there that can be of assistance to you in preparing yourself for disasters. There is an index of publications that we put out at the end of this book, along with special offers for equipment, supplies, and self-reliant living that will help you survive when disaster strikes.)

8. Take a first aid and CPR class. Local American Red Cross chapters can provide information. Official certification by the American Red Cross provides "Good Samaritan" law protection for those giving first aid.

9. Reduce the economic impact of disaster on your property and your household's health and financial well-being.

   - Review your property insurance policies. Most policies do not cover for acts of God, terrorism, or war.

   - Protect your household's financial well-being before a disaster strikes. Review life insurance policies and consider saving money in an "emergency" savings account that could be used in any crisis. It is advisable to keep a reasonable amount of cash at home in a safe place where you can quickly gain access to it in case of an evacuation or to have cash on hand when you can finally emerge from your shelter.

   - Be certain that health insurance policies are current and meet the needs of your household.

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10. Consider ways to help neighbors who may need special assistance, such as the elderly or the disabled.

11. Make arrangements for pets. Pets are not allowed in public shelters. Service animals for those who depend on them are allowed.

EMERGENCY PLANNING

Immediately after a nuclear attack, you'll find yourself cut off from essential services, and local disaster relief and government responders may not be able to reach you right away. Even if they could reach you, knowing what to do to protect yourself and your household is essential.

One of the most important steps you can take in preparing for emergencies is to develop a household disaster plan.[2] The following can be used for any disaster, from terrorist attack to hurricanes and floods.

Learn about the natural disasters that could occur in your community from your local emergency management office or American Red Cross chapter. Learn whether hazardous materials are produced, stored or transported near your area. Look at possible military bases in your area and their potential for being a target of terrorists. Learn about possible consequences of deliberate acts of terror. Ask how to prepare for each potential emergency and how to respond. For more information call 1-866- GET-INFO (that's 1-866-438-4636) or visit www.redcross.org.

1. Talk with employers and school officials about their emergency response plans.

2. Talk with your household about potential emergencies and how to respond to each. Talk about what you would need to do in an evacuation.

3. Plan how your household would stay in contact if you were separated. Identify two meeting places: the first should be near your home in case of

[2] Ibid

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fire, perhaps a tree or a telephone pole; the second should be away from your neighborhood in case you cannot return home.

4. Pick a friend or relative who lives out of the area for household members to call to say they are okay.

5. Draw a floor plan of your home. Mark two escape routes from each room.

6. Post emergency telephone numbers by telephones. Teach children how and when to call 911. Remember however, after a nuclear attack, all electrical and communications systems in the area will be affected. Strategize your emergency planning to include the probability that communication will not be possible.

7. Make sure everyone in your household knows how and when to shut off water, gas, and electricity at the main switches. Consult with your local utilities if you have questions. This is extremely important, especially for the water. Shutting off the water in the house will ensure what's available in the pipes is not contaminated from broken water lines elsewhere in the community system.

8. Take a first aid and CPR class. Local American Red Cross chapters can provide information. Official certification by the American Red Cross provides "Good Samaritan" law protection for those giving first aid.

9. Reduce the economic impact of disaster on your property and your household's health and financial well-being.

   - Review your property insurance policies. Most policies do not cover for acts of God, terrorism, or war.

   - Protect your household's financial well-being before a disaster strikes. Review life insurance policies and consider saving money in an "emergency" savings account that could be used in any crisis. It is advisable to keep a reasonable amount of cash at home in a safe place where you can quickly gain access to it in case of an evacuation or to have cash on hand when you can finally emerge from your shelter.

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- Be certain that health insurance policies are current and meet the needs of your household.

10. Consider ways to help neighbors who may need special assistance, such as the elderly or the disabled.

11. Make arrangements for pets. Pets are not allowed in public shelters. Service animals for those who depend on them are allowed.

Planning for people with special needs

If you have a disability or special need, you may have to take additional steps to protect yourself and your household in an emergency. If you know of friends or neighbors with special needs, help them with these extra precautions. Examples include:

- Hearing impaired may need to make special arrangements to receive a warning.
- Mobility impaired may need assistance in getting to a shelter.
- Households with a single working parent may need help from others both in planning for disasters and during an emergency.
- Non-English speaking people may need assistance planning for and responding to emergencies.
- Community and cultural groups may be able to help keep these populations informed.
- People without vehicles may need to make arrangements for transportation.
- People with special dietary needs should have an adequate emergency food supply.

People with special needs have to prepare now, before a nuclear attack hits:

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1. Find out about special assistance that may be available in your community. Register with the office of emergency services or fire department for assistance, so needed help can be provided quickly in an emergency.

2. Create a network of neighbors, relatives, friends and co-workers to aid you in an emergency. Discuss your needs and make sure they know how to operate necessary equipment.

3. Discuss your needs with your employer.

4. If you are mobility impaired and live or work in a high-rise building, have an escape chair.

5. If you live in an apartment building, ask the management to mark accessible exits clearly and to make arrangements to help you evacuate the building.

6. Keep extra wheelchair batteries, oxygen, catheters, medication, food for guide or hearing-ear dogs, or other items you might need. Also, keep a list of the type and serial numbers of medical devices you need.

7. Those who are not disabled should learn who in their neighborhood or building is disabled so that they may assist them during emergencies.

8. If you are a caregiver for a person with special needs, make sure you have a plan to communicate if an emergency occurs.

Shelter

Taking shelter is often a critical element in protecting yourself and your household in times of disaster. Sheltering can take several forms – from short-term (such as when a tornado strikes) to long-term. Long term sheltering is usually when conditions require that you seek protection in your home or other designated shelter when disaster strikes.

Taking shelter during a nuclear attack is absolutely necessary. There are two kinds of shelters - blast and fallout.

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Blast shelters offer some protection against blast pressure, initial radiation, heat and fire, but even a blast shelter could not withstand a direct hit from a nuclear detonation.

Fallout shelters do not need to be specifically constructed for that purpose. They can be any protected space, provided that the walls and roof are thick and dense enough to absorb the radiation given off by fallout particles. The three protective factors of a fallout shelter are shielding, distance, and time.

- Shielding. Materials like thick walls, concrete, bricks, books and earth between you and the fallout particles. The more, the better.

- Distance. The more distance between you and the fallout particles, the better. An underground area, such as a home or office building basement, offers more protection than the first floor of a building. A floor near the middle of a high-rise may be better, depending on what is nearby at that level on which significant fallout particles would collect. Flat roofs collect fallout particles so the top floor is not a good choice, nor is a floor adjacent to a neighboring flat roof.

- Time. Fallout radiation loses its intensity fairly rapidly. In time, you will be able to leave the fallout shelter. Radioactive fallout poses the greatest threat to people during the first two weeks, by which time it has declined to about 1% of its initial radiation level.

Remember that any protection, however temporary, is better than none at all, and the more shielding, distance and time you can take advantage of, the better. And although the electromagnetic pulse from the blast shouldn't cause harm to most people, it could interfere with pacemakers or other implanted electronic devices.

Long-term sheltering

A nuclear attack in your vicinity will make it unsafe for people to leave their residence for an extended period. Your household should be prepared to be self-sufficient in a long-term shelter for as long as 4 to 6 weeks. It's advisable to have stores laid in for a longer period. Even when you're able to go back outside, the

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infrastructure of your city or town will be decimated. There won't be the ability to transport foods and supplies as before.

1. Stay in your shelter until local authorities say it's okay to leave. The length of your stay can range from two to four weeks.

2. Maintain a 24-hour communications and safety watch. Take turns listening for radio broadcasts. Watch for fires.

3. Assemble an emergency toilet.

   - Use a garbage container, pail or bucket with a snug-fitting cover. If the container is small, use a larger container with a cover for waste disposal. Line both containers with plastic bags.
   - After each use, pour or sprinkle a small amount of regular household disinfectant, such as chlorine bleach, into the container to reduce odors and germs.

Managing water supplies

Water is critical for survival. Plan to have about one gallon of water per person per day for drinking, cooking and personal hygiene. You may need more for medical emergencies.

1. Allow people to drink according to their need. The average person should drink between two and two-and-one-half quarts of water or other liquids per day, but many people need more. This will depend on age, physical activity, physical condition and time of year. Under no circumstances should a person drink less than one quart of water each day. You can minimize the amount of water your body needs by reducing activity and staying cool.

2. Drink water that you know is not contaminated first. If necessary, suspicious water, such as cloudy water from regular faucets or muddy water from streams or ponds, can be used after it has been treated. If water treatment is not possible, put off drinking suspicious water as long as possible, but do not become dehydrated.

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3. In addition to stored water, other sources include:

   - Melted ice cubes.
   - Water drained from the water heater faucet, if the water heater has not been damaged.
   - Water dipped from the flush tanks (not the bowls) of home toilets. Bowl water can be used for pets.
   - Liquids from canned goods such as fruit and vegetable juices.

4. Carbonated beverages do not meet drinking-water requirements. Caffeinated drinks and alcohol dehydrate the body, which increases the need for drinking water.

5. If water pipes are damaged or if local authorities advise you, turn off the main water valves to prevent water from draining away in case the water main breaks.

   - The pipes will be full of water when the main valve is closed.
   - To use this water, turn on the faucet at the highest point in your house (which lets air into the system).
   - Then draw water, as needed, from the lowest point in your house, either a faucet or the hot water tank.

6. Unsafe water sources include:

   - Radiators.
   - Hot water boilers (home heating system).
   - Water beds (fungicides added to the water or chemicals in the vinyl may make water unsafe to use).
   - Swimming pools and spas (chemicals used in them to kill germs are too concentrated for safe drinking, but can be used for personal hygiene, cleaning and related uses.)

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Water treatment

Treat all water of uncertain purity before using it for drinking, food washing or preparation, washing dishes, brushing teeth or making ice. In addition to having a bad odor and taste, contaminated water can contain microorganisms that cause diseases such as dysentery, cholera, typhoid and hepatitis.

There are many ways to treat water. None is perfect. Often the best solution is a combination of methods. Before treating, let any suspended particles settle to the bottom, or strain them through layers of clean cloth. Following are four treatment methods. The first three methods boiling, chlorination and water treatment tablets will kill microbes but will not remove other contaminants such as heavy metals, salts, most other chemicals and radioactive fallout. The final method distillation will remove microbes as well as most other contaminants, including radioactive fallout.

Boiling is the safest method of treating water.

- Boiling water kills harmful bacteria and parasites. Bringing water to a rolling boil for 1 minute will kill most organisms. Let the water cool before drinking.

- Boiled water will taste better if you put oxygen back into it by pouring it back and forth between two containers. This will also improve the taste of stored water.

Chlorination uses liquid chlorine bleach to kill microorganisms such as bacteria.

- Use regular household liquid bleach that contains no soap or scents. Some containers warn, "Not For Personal Use." You can disregard these warnings if the label states sodium hypochlorite as the only active ingredient and if you use only the small quantities mentioned in these instructions.

- Add six drops (1/8 teaspoon) of unscented bleach per gallon of water, stir and let stand for 30 minutes. If the water does not taste and smell of

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chlorine at that point, add another dose and let stand another 15 minutes. This treatment will not kill parasitic organisms.

- If you do not have a dropper, use a spoon and a square-ended strip of paper or thin cloth about 1/4 inch by 2 inches. Put the strip in the spoon with an end hanging down about 1/2 inch below the scoop of the spoon. Place bleach in the spoon and carefully tip it. Drops the size of those from a medicine dropper will drip off the end of the strip.

Water treatment "purification" tablets release chlorine or iodine. They are inexpensive and available at most sporting goods stores and some drugstores. Follow the package directions carefully. NOTE: People with hidden or chronic liver or kidney disease may be adversely affected by iodized tablets and may experience worsened health problems as a result of ingestion. Iodized tablets are safe for healthy, physically fit adults and should be used only if you lack the supplies for boiling, chlorination and distillation.

Distillation involves boiling water and collecting the vapor that condenses back to water. The condensed vapor may include salt or other impurities.

- Fill a pot halfway with water.
- Tie a cup to the handle on the pot's lid so that the cup hangs right side up when the lid is upside-down (make sure the cup is not dangling into the water).
- Boil for 20 minutes. The water that drips from the lid into the cup is distilled.

Managing food supplies

1. It is important to be sanitary when storing, handling and eating food.

- Keep food in covered containers.
- Keep cooking and eating utensils clean.

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- Keep garbage in closed containers and dispose outside. Bury garbage, if necessary. Avoid letting garbage accumulate inside, both for fire and sanitation reasons.

- Keep hands clean. Wash frequently with soap and water that has been boiled or disinfected. Be sure to wash:

  - Before preparing or eating food.
  - After toilet use.
  - After participating in flood cleanup activities.
  - After handling articles contaminated with floodwater or sewage.

2. Carefully ration food for everyone except children and pregnant women. Most people can remain relatively healthy with about half as much food as usual and can survive without any food for several days.

3. Try to avoid foods high in fat and protein, since they will make you thirsty. Try to eat salt-free crackers, whole grain cereals and canned foods with high liquid content.

4. For emergency cooking, heat food with candle warmers, chafing dishes and fondue pots, or use a fireplace. Charcoal grills and camp stoves can quickly deplete the oxygen in an enclosed area and are for outdoor use only.

5. Commercially canned food can be eaten out of the can without warming. Before heating food in a can, remove the label, thoroughly wash the can, and then disinfect them with a solution consisting of one cup of bleach in five gallons of water, and open before heating. Re-label your cans, including expiration date, with a marker.

   - Do not eat foods from cans that are swollen, dented or corroded even though the product may look okay to eat.

   - Do not eat any food that looks or smells abnormal, even if the can looks normal.

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- Discard any food not in a waterproof container if there is any chance that it has come into contact with contaminated floodwater.

- Food containers with screw-caps, snap-lids, crimped caps (soda pop bottles), twist caps, flip tops, snap-open, and home canned foods should be discarded if they have come into contact with floodwater because they cannot be disinfected. For infants, use only pre-prepared canned baby formula. Do not use powdered formulas with treated water.

6. Your refrigerator will keep foods cool for about four hours without power if it is left unopened.

Thawed food usually can be eaten if it is still "refrigerator cold," or if it still contains ice crystals. To be safe, remember, "When in doubt, throw it out." Discard any food that has been at room temperature for two hours or more, and any food that has an unusual odor, color, or texture.

DURING A NUCLEAR ATTACK

1. Do not look at the flash or fireball - it can blind you.

2. If you hear an attack warning:

   - Take cover as quickly as you can, BELOW GROUND IF POSSIBLE. Stay there unless instructed to do otherwise.

   - If you are caught outside and unable to get inside immediately, take cover behind anything that might offer protection. Lie flat on the ground and cover your head.

   - If the explosion is some distance away, it could take 30 seconds or more for the blast wave to hit.

3. Protect yourself from radioactive fallout. If you are close enough to see the brilliant flash of a nuclear explosion, the fallout will arrive in about 20 minutes. Take shelter, even if you are many miles from ground zero.

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Radioactive fallout can be carried by the winds for hundreds of miles. Remember the three protective factors: shielding, distance and time.

4. Keep a battery-powered radio with you, and listen for official information. Follow the instructions given. Local instructions should always take precedence. Officials on the ground know the local situation best.

AFTER THE ATTACK

In a public or home shelter:

1. Do not leave the shelter until officials say it is safe. Follow their instructions when leaving.

2. If in a fallout shelter, stay in your shelter until local authorities tell you it is permissible or advisable to leave. The length of your stay can range from a day or two to four weeks.

   - Contamination from a radiological dispersion device could affect a wide area, depending on the amount of conventional explosives used, the quantity of radioactive material and atmospheric conditions.

   - A "suitcase" terrorist nuclear device detonated at or near ground level would produce heavy fallout from the dirt and debris sucked up into the mushroom cloud.

   - A missile-delivered nuclear weapon from a hostile nation would probably cause an explosion many times more powerful than a suitcase bomb, and provide a greater cloud of radioactive fallout.

   - The decay rate of the radioactive fallout would be the same, making it necessary for those in the areas with highest radiation levels to remain in shelter for up to a month.

   - The heaviest fallout would be limited to the area at or downwind from the explosion, and 80% of the fallout would occur during the first 24 hours.

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- Because of these facts and the very limited number of weapons terrorists could detonate, most of the country would not be affected by fallout.

- People in most of the areas that would be affected could be allowed to come out of shelter and, if necessary, evacuate to unaffected areas within a few days.

3. Although it may be difficult, make every effort to maintain sanitary conditions in your shelter space.

4. Water and food may be scarce. Use them prudently but do not impose severe rationing, especially for children, the ill or elderly.

5. Cooperate with shelter managers. Living with many people in a confined space can be difficult and unpleasant.

6. If you have been exposed to radiation:

   - Iodine protects the thyroid by saturating it with stable iodide instead of the radioactive iodine in radiation exposure. It's important to understand that iodine only protects the thyroid, not other organs of the body. Keep a bottle of KI (potassium iodide) iodine tablets in your emergency kit.

   - Recommended dosages are:

     Adults should take 130 mg (one 130 mg tablet OR two 65 mg tablets OR two mL of solution).

     Women who are breastfeeding should take the adult dose of 130 mg.

     Children between 3 and 18 years of age should take 65 mg (one 65 mg tablet OR 1 mL of solution). Children who are adult size (greater than or equal to 150 pounds) should take the full adult dose, regardless of their age.

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Infants and children between 1 month and 3 years of age should take 32 mg (½ of a 65 mg tablet OR ½ mL of solution). This dose is for both nursing and non-nursing infants and children.

Newborns from birth to 1 month of age should be given 16 mg (¼ of a 65 mg tablet or ¼ mL of solution). This dose is for both nursing and non-nursing newborn infants.

Returning to your home

1. Keep listening to the radio for news about what to do, where to go, and places to avoid.
2. If your home was within the range of a bomb's shock wave, or you live in a high-rise or other apartment building that experienced a non-nuclear explosion, check first for any sign of collapse or damage, such as:
   - toppling chimneys, falling bricks, collapsing walls, plaster falling from ceilings.
   - fallen light fixtures, pictures and mirrors.
   - broken glass from windows.
   - overturned bookcases, wall units or other fixtures.
   - fires from broken chimneys.
   - ruptured gas and electric lines.
3. Immediately clean up spilled medicines, drugs, flammable liquids, and other potentially hazardous materials.
4. Listen to your battery-powered radio for instructions and information about community services.
5. Monitor the radio and your television for information on assistance that may be provided. Local, state and federal governments and other organizations

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will help meet emergency needs and help you recover from damage and losses.

6. The danger may be aggravated by broken water mains and fallen power lines.

7. If you turned gas, water and electricity off at the main valves and switch before you went to shelter:

   - Do not turn the gas back on. The gas company will turn it back on for you or you will receive other instructions.
   - Turn the water back on at the main valve only after you know the water system is working and water is not contaminated.
   - Turn electricity back on at the main switch only after you know the wiring is undamaged in your home and the community electrical system is functioning.
   - Check to see that sewage lines are intact before using sanitary facilities.

8. Stay away from damaged areas.

9. Stay away from areas marked “radiation hazard” or “HAZMAT.”

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CHAPTER 5
CAN WE SURVIVE AND REBUILD?

There is no doubt that if a large-scale nuclear exchange occurred, it would be devastating for all the societies involved. Many people believe that recovery would be impossible and that there is no reason to give anyone a glimmer of a hope that they can survive. It's long been a maxim that in a nuclear war there are no winners…everyone loses. However, that is a long way from stating that there is no way to survive a nuclear war, yet many people in government planning do. They're defeated by the prospect before they even get started. This is a nihilistic view of the world. As long as people survive, there is hope. As long as there is a way to rebuild, then it's our responsibility to rebuild and restore, if not for our sakes, then for the sakes of our children.

According to a 1990 FEMA report titled *Nuclear Attack Planning – 1990*, the odds of surviving a nuclear attack were as follows:

- 1 in 3 being killed outright by blast or thermonuclear effects;
- 1 in 25 being killed by fallout radiation;
- 1 in 6 of being ill or injured, but not fatally;
- Almost 1 in 2 of being uninjured.

According to the Civil Defense Preparedness Agency's 1979 report *Recovery From Nuclear Attack*, "Years of research have failed to reveal any single factor that would preclude recovery from nuclear attack." Instead it stated that our government's lack of realistic plans for the reorganization and management of surviving resources was our Achilles' heel. For instance, it's a known fact that iodine tablets are needed to counter the effects of radiation exposure, yet our country is the only nuclear country that has not stockpiled iodine for its citizens. Our government's insistence on hiding its head in the sand over every perceived problem makes its citizens less safe.

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If you want to survive nuclear attack, you're going to have to take measures yourself. On the surface this is maddening because what are our tax dollars paying for in the first place if not the security of the United States citizenry? But at the same time, this is the exact environment that our independent spirit shines. We aren't dependent on the government for our welfare.

We don't have to rely on someone else to do for us what we can do for ourselves. We are a strong-spirited people who may have lost our way for a while, but don't have to remain in that wilderness.

We CAN survive – and we will.

Government studies project a return to economic viability within a decade of a nuclear attack. Some reject this premise as flawed and subsequent doomsday advocates and Hollywood motion pictures seem to not take in the big picture of likely outcomes. This would include:

- While no census of population could be reliably performed in the immediate aftermath of a nuclear attack, best estimates show a United States population of 125 to 150 million people. This is about the population of the country as existed in the 1930s.

- Since urban areas contain the most critical targets and therefore are the most likely to be attacked, the remaining survivors would be rural dwellers, those already possessing the skills needed to survive.

- The very young and the very old would be the most vulnerable to the effects of nuclear attack. Therefore the survivors would be relatively middle-aged, still in the prime of life. There would not likely be any difference in the ratio of the sexes.

- Life expectancy will probably be shortened by as much as five years, worse case scenario, by the effects of radiation exposure.

- There would be fewer doctors and hospitals, corporate headquarters and executives, petroleum refineries, pharmaceutical plants, and public officials since these people are concentrated in the urban areas. Again, people in

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rural areas with back-to-basic skills will have the greatest chance of surviving the societal aftermath of a nuclear attack.

- Many domestic animals, wild animals and crops will be destroyed. However, in ratio to humans, a higher percentage will survive.

- Major disasters that have occurred in peacetime seem to indicate that despite the shock and disruption of an attack, widespread panic will not be a problem. The general behavior of survivors would be adaptive, as long as they shared fairly in the effort expended on recovery goals. A welfare-mentality, sit-on-your-rear attitude would not be long tolerated in the recovering societal model that would emerge.

According to the 1990 FEMA report, there would be ten obstacles to overcome in the aftermath of a nuclear incident. They are as follows:

- Blast and Fire (1 to 2 days after attack)
- Fallout radiation (1 to 7 days after attack)
- Trapped or no medical treatment (2 to 7 days after attack)
- Life support inadequacies (5 to 50 days after attack)
- Epidemics and Diseases (2 week to one year after attack)
- Climate modifications (2 months to 2 years after attack)
- Economic breakdown (1 to 2 years after attack)
- Late radiation effects (5 to 20 years after attack)
- Ecological effects (10 to 50 years after attack)
- Genetic damage (several generations)

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Post-nuclear attack recovery is not a matter of overcoming each of these obstacles one at a time, but for the benefit of the reader, we'll address each of them separately.

BLAST AND FIRE

The first obstacle to overcome would be the direct effects of a nuclear detonation, the blast and fire. This will affect those living near critical military installations and industrial plants, as well as large urban centers since these will most likely be the target.

According to FEMA's report, the biggest misconception is the threat of fires that will result after a nuclear explosion. Most of the fires are caused by the heat flash of the detonation; however the blast wind will extinguish most of these immediately. The threat is smoldering debris that can reignite, especially around flammables. Most of the fires will result around buildings that are damaged but not obliterated.

Most predictions of the resulting fire and blast damage that came from the 1960s has not stood the tests of peer reviews or time. Only 1 to 2 percent of the populations of Hiroshima and Nagasaki were fatally burned in nuclear fires. This was mostly the result of the population being out in the open and watching the planes carrying the bomb come in. Had they sought shelter, the citizen deaths would have been much lower.

Many experts do not believe that fire storms in urban centers are a likely effect of a nuclear detonation. However, if military facilities, oil refineries, and industrial centers are attacked, then firestorms are more likely. The study puts the probability of fire death at the Hiroshima/Nagasaki levels of around 2 percent of the population.

LETHAL RADIATION

The fallout radiation from surface-burst nuclear weapons could potentially threaten people not only in the area of detonation, but those much further away. Air burst nuclear devices pose the least threat of radioactive fallout. It is the

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crater effect - the carrying of larger radioactive particles up into the air that fall quite rapidly before radioactive decay can occur – that is the hazard.

Wind and weather also affect the direction and extent of fallout, as do the types of nuclear weapons used in the attack. Well-built fall-out shelters offer the best protection while waiting for the decay of radioactive materials.

TRAPPED OR NO MEDICAL AID

Some survivors may be trapped or seriously injured in the debris from explosions. Current model predictions use the Hiroshima/Nagasaki events as their baseline, where little to no medical or triage treatment or rescue was available. Therefore, estimates of death from trapped or unavailable medical aid may be overly pessimistic.

However, it is incumbent on everyone to have their own emergency medical kit so that in the event of injury, family members can be treated. The Red Cross and local hospitals offer a variety of community courses on first aid and triage treatment in emergency situations. Med kits that are used on the combat field are available at military surplus outlets on the internet. The kits contain more than Band-Aids® or antibiotic cream. The more elaborate ones include suturing supplies and other items that a first responder might need.

INADEQUATE LIFE SUPPORT

The most urgent needs of survivors will be food, water and shelter. You should have already taken care of this with your stockpiling of provisions and supplies as you prepared for an emergency situation. Other items that will be vital to support will be the restoring of communications, power, and public health facilities.

Remember though, modern conveniences like telephones and electricity have only been around for a century or so. Man was surviving way before these modern marvels made the scene. Your survival depends on you surveying your available supplies and building from there.

While critical needs areas will likely get power restored as soon as feasible, you may find yourself without electricity for a while. Since it’s assumed that mostly

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rural dwellers will survive an attack, learning self-reliant living methods will mean the difference between barely hanging on and adequate means of surviving.

You'll want to keep a battery operated radio and plenty of spare batteries on hand for the eventual return of radio broadcast capability. You'll want to have weapons on hand so that you can hunt for food, because transportation of food products will not occur for a long time.

It'll be a good idea to get a survival garden seed kit that includes only heirloom seeds that you can plant not only for food but future seed stocks. http://www.powerfulliving.com has many of these items that you can purchase now for your future needs.

If you feel that you won't be able to make it without modern means of survival, remember Leningrad, Russia during the German siege of World War II. Leningrad survived this siege for over two and a half years with almost no means of outside support. It won't be easy. It'll be hard work. But people have been surviving for years from one calamity or another, and you can to.

In addition to food and water, you'll need to learn about chemical toilets or outhouses and make provisions for them because public sanitation will not be up and running for a while. The health of your family isn't just dependent on protecting them from the radioactive fallout of a nuclear weapon, but the health and sanitation needs you foresee as you start trying to rebuild your lives. Learning about herbs and natural homeopathic means of treatment will help you keep you and your family healthy as well.

CLIMATE MODIFICATION

Doomsday advocate, science fiction writers and Hollywood elite would like to postulate the theory that a nuclear attack will result in catastrophic climate changes that will mean the end of life on Earth as we know it. From theories of a new Ice Age to the melting of the polar caps, the conjectures don't seem to be based on sound, scientific fact.

One of the prevailing theories of the 1970s was that a nuclear attack would cause such a massive depletion of the ozone layer – the natural shield between

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us and the sun – that cancer deaths from ultraviolet radiation would practically wipe out most of the rest of the life on the planet. This scenario appears to be overly hysterical.

According to a 1985 study from the National Academy of Sciences, even if 80% of the nuclear warheads on Earth today were detonated, the ozone layer would be depleted by only 50% within a year. Half of that loss would be restored by the natural regeneration of the ozone layer within two years. Assuming that survivors took no precautions, they estimated a 10% increase in cancer deaths.

A 1982 article in the Swiss environmental journal Ambio conjectured a nuclear winter thesis that was quickly seized by some American scientists, including astrophysicist Carl Sagan. According to this theory, a nuclear war would create enough smoke and soot in the atmosphere to block out 99% of the sun's light for several months. Using one-dimensional computer models that did not account for oceans and continents, that used a 24-hour day with no nights, and a ten-mile thick soot cloud generated immediately, they concluded that temperatures would drop by 65 degrees in the summertime. This study led to media hysteria and wide publicity, much like Al Gore's "global warming" studies have in recent times.

In 1986, scientists from the National Center for Atmospheric Research reached a much milder conclusion. They used a three-dimensional computer model that took into account all features of normal weather, climate, land masses and oceans. Instead of a nuclear winter, they postulate a "nuclear cooling" of about at most 20° Fahrenheit during a summer month in the Northern Hemisphere.

However, even that temperature differential can mean a threat to agriculture. If predicted below-normal rain levels and cooler temperatures are accurate, then crops could be adversely affected, but mainly in the first year after attack.

EPIDEMICS AND DISEASES

The more imaginative outlooks of nuclear winters and total-destruction by fire don't compare to the very real threat of epidemics and diseases in the face of a nuclear attack. Many things will contribute to a higher mortality rate amongst survivors from these two things.

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- Less efficient sanitation.
- Loss of public health personnel and facilities
- Inadequate supplies of medications, remedies and vaccinations
- Higher susceptibility to infections because of radiation exposure

While epidemics of diseases from the past have largely ceased to exist in the United States, lower thresholds in immune systems from radiation exposure could give bacteria, viruses and germs an edge.

While these decreased immunity effects would only be temporary, nature has a way of taking advantage of a vacuum. Because of the lack of transportation however, these pockets of illness would be pretty self-contained within the population they arose in. In a pinch, medications for veterinary use can be used by people.

Preventative measures in sanitation and cleanliness well help control the spread of disease among the surviving population. Knowledge in alternative medical therapies will also enhance the ability to survive.

ECONOMIC RECOVERY

Some believe that the unbelievable destruction generated by a nuclear weapon would make economic recovery impossible. However, careful study has shown that essential resources for recovery would survive an attack, and with the right leadership and the cooperation of the public at large, economic chaos is not a given.

Studies looking at the effects of devastation in post-World War II showed that economic activity was actually at a higher level five years after the war than before it. Even those countries that received no monetary support sustained higher levels of economic activity after the war. While a nuclear attack would cause considerable damage to the United States physical infrastructure, it could be argued that post-World War II Germany was virtually destroyed and yet recovered. There are not enough nuclear warheads to attack the United States

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simultaneously in all quarters. There would be urban areas that survived, and rural areas that remained untouched.

Much has been speculated about production capability after a nuclear attack. Would industry be able to gear up, resume, and increase production for a post-nuclear world?

Even if we still produced the majority of our consumerables in this country, a nuclear attack would automatically mean a population reduction. You would not need to produce in the quantities produced before the attack. However, this raises a serious question about the viability of the United States.

Ever since NAFTA, we have seen our industries and our jobs leave this country en masse. Newer treaties since then have created an even larger sucking sound of jobs leaving the country, to paraphrase a quote by Ross Perot during his 1992 presidential campaign. We have exported so much of our industry that we no longer have the capacity for recovery that we used to. In all seriousness, our industrial recovery isn't at issue; it's the ability to produce anything at all that is in question. By allowing our corporations and government to turn us into a service-industry based economy, we have lost our ability to provide for ourselves. We will be more dependent on the latitude of foreign governments that do not necessarily like us.

The people of the United States have been put in a precarious position. However, I believe that the resilient spirit of her people still remains, and with God's grace, anything is possible.

ECOLOGICAL EFFECTS

While there is still uncertainty just exactly what the ecological effects of a nuclear war would include, speculation that attack effects would have devastating consequences on the balance of nature seem to operate from a few erroneous assumptions.

The first is that changes that occur for a relatively short period of time would cause permanent ecological damage. This isn't supported by the evidence. Nuclear weapons testing on atolls in the South Pacific show that the tropical eco-

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system has not only survived, but recovered. Long-term effects require continuous onslaught over a long period of time. Man himself has radically changed the face of this planet, and somehow she seems to survive.

The second error of the ecological forecasts assumes that the impact occurs everywhere. This is simply not true. Areas of high fall-out are rarely more than 20 to 60 miles from areas of low fall-out. However, short-term consequences could still be seen. For example, as mentioned before, speculation suggests that rainfall might decrease, at least for the first year. This would have a temporary impact on the eco-systems. Yet other models suggest that rainfall could actually increase in some areas. However, human planning and intervention could offset any short-term effects.

LATE RADIATION EFFECTS

Long-term radiation affects would be seen in the years following a nuclear war. These would include thyroid damage, leukemia, bone cancer, and other cancers that occur today. Radiation doesn't create new forms of cancer – it just increases the frequency of occurrence in the general population of the forms already around.

Today, about 15% of the world's population suffers from one form of cancer or another. Should a nuclear attack occur, that figure would increase to about 18% of the surviving population. Scientists say that these deaths would occur mainly among the elderly and that no appreciable difference in cancer mortality rates would be seen in the lower age groups.

GENETIC DAMAGE

The genetic damage that can be caused by radiation exposure seems widely misunderstood, and as such creates much more fear than necessary in the general population. Contrary to popular belief, genetic damage from radiation will not produce two-headed monsters. Genetic mutations from ionizing radiation are no different than the mutations seen from other causes. What you will probably see is a statistical increase in the number of birth-defects most commonly seen today.

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Dr. H. J. Muller, an American geneticist and Nobel Prize winner, has led the way in the studies of the effects of radiation on genetic material. His findings show that the results of ionizing radiation on humans would not adversely affect the survival of people or stop the progress of recovery.

While no one hopes that we find out if we can survive a nuclear attack, or even hope that we can be better off after one, the available material, science, and studies seem to indicate that we will make it through a nuclear war. What we do need is more than abstracts computer models. We need a cohesive civil defense policy for our nation. This doesn't seem to be forthcoming, especially not from this administration. As always, when the chips are down, it's the American people that will answer the call to duty and responsibility.

The American people will ensure their own survival.

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CHAPTER 6
THE OUTLOOK FOR OUR COUNTRY AND FOR YOU

There's no doubt that a nuclear war will be devastating. It won't be easy surviving it in the first months, let alone in the years afterward. Life as we know it would be over. We'd have to learn an entire new set of skills, the ones we've allowed to die out with the subsequent passing of each generation. We'd have to be prepared to remake civilization all over again. Yet Americans are surprisingly resilient, and their "cowboy" mentality and independent spirit will serve them well in the years following a nuclear attack.

There are things that you can do now - books you can read, skills you can master, supplies you can buy - to prepare you not only for a nuclear attack but anything that could happen. For instance, we're in an economic quagmire in our country and world right now. Gardening skills and canning know-how would go a long way in helping with your financial concerns. Powerful Living LLC offers several things in this area to help see you through a food shortage caused from any reason with their heirloom seed survival kit and their DVD collection that teaches you how to can or dry vegetables, meats, and herbs.

Heirloom Seeds

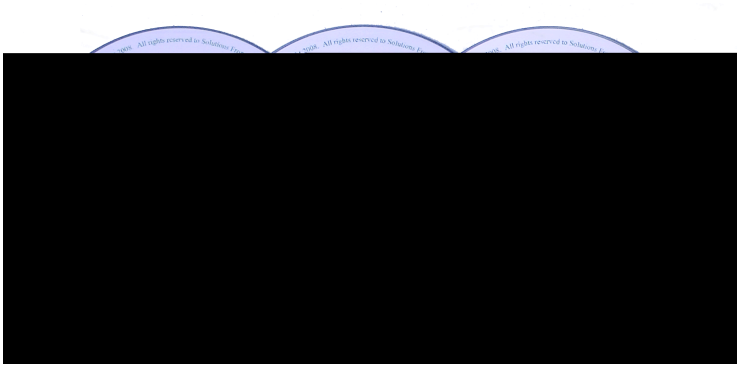


If you're going to plant a survival garden then you definitely want a good source of non-hybrid, non-germinated seeds. As you probably know, big seed companies have now engineered seeds with a "terminator gene". These seeds will not reproduce after themselves as they have been genetically altered. We've located a company that sells a "Survival Seed Bank" containing enough heirloom seeds to plant a full acre crisis garden. All you have to do is save some of the seeds each fall and this little kit will produce a lifetime supply of food for you and your family and neighbors. You can learn more about it by going to their website. It can be located at: www.survivalseedbank.com.

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Food Storage

Once you plant and harvest your garden, make sure you know how to properly store these foods by drying or canning. One of the best resources for food storing strategies can be found at: www.foodshortageusa.com.



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CHAPTER 7
THE AMAZING HEALING PROPERTIES OF CLAY

Suppose that you are lucky enough to be beyond ground zero of a nuclear detonation, but government services and health care are either in total chaos and turmoil or non-existent. What other preventative treatments or natural remedies do you have available to help you overcome the effects of radiation poisoning?

Radiation poisoning or radiation sickness is a form of damage to organ tissue due to the excessive exposure of ionizing radiation. Your organs not only include your heart, lungs, intestines, etc., but your skin as well. Your skin is considered the largest organ of your body. Nausea and vomiting are usually the first symptoms, followed by headache, fatigue and weakness. Hair loss, infections, and bloody vomit and stools are all symptoms of lower levels of radiation poisoning. It's important to rid your body as soon as possible of these damaging ions.

There are three types of burns associated with a nuclear detonation:

- Thermal burns
- Beta burns
- Gamma burns

Thermal burns result from infrared heat radiation. Infrared heat cannot penetrate the body and these burns are localized to the area of skin that is exposed to the infrared heat. *Beta* burns are from shallow ionizing radiation, such as fallout particles that land on the skin. These particles have a weak penetration and are short range. *Gamma* burns are the result of highly penetrating ionizing radiation.

Radiation particles can also be inhaled or ingested, especially if precautionary measures are not taken before, during, or after a nuclear detonation. These particles can be lethal.

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Radiation has commonly been measured in *rads*, or a unit of absorbed radiation dose defined in terms of the energy actually deposited in the tissue.

Today radiation is measured in *grays*, or GY. A gray is one joule of deposited energy per one kilo of tissue. One gray is equal to one hundred rads. Anyone who has absorbed over 8 grays of radiation, or 800 rads, is a dead man walking. It's just a matter of time.

As was mentioned earlier in the book, potassium iodide is used to protect the thyroid gland from the effects of radiation exposure. Iodine will not protect any other internal organs and it won't protect against dirty bombs that produce radionuclides other than isotopes of iodine. However, all is not lost.

There is one substance that is cheap, effective, versatile, mysterious and the most underrated and covered-up health treatment available. It has been around since the beginning of time and used by humans for medicinal purposes from those earliest of days. It neutralizes poisons in the intestinal tract, soothes virtually all digestive diseases and enriches and balances the blood. It has been used for open wounds, pain treatment, acne, and even to reduce mortality from cholera during the Balkan War of 1910. Russian scientists protect their bodies from radiation with it and it was used to dump on the Chernobyl nuclear power plant site after its reactor meltdown in 1986.

Two thousand years ago, Jesus used it on a blind man, forming a paste with the substance and rubbing it on the man's eyes. It is the only instance the Bible records of Jesus using something together with His spoken word to heal. We are, of course, talking about clay.





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The clays most commonly used for medicinal purposes are kaolin and the smectite clays - those clays that have the ability to ***adsorb*** as well as ***absorb.*** As clay passes through your body, its negative ionic charge draws to it anything with a positive ionic charge - bacteria, viruses, toxins, and radiation, to name a few. This attraction causes these substances to stick to the surface of the clay. This is ***adsorption.***

The clay will absorb the substances as well, and they are then eliminated from the body. In the case of radiation, it is considered a ***chelator*** - an organic chemical that bonds with and removes free metal ions. It can be used internally and externally.

Research shows that clay's properties are anti-bacterial, anti-viral, and anti-parasitic. It's a powerful detoxifying agent. Research from Arizona State University and reported by the Geological Society of America shows that a certain type of French clay kills several kinds of disease-causing bacteria. These include *Mycobacterium ulcerans*, a germ related to leprosy and tuberculosis and the one which causes the flesh-eating disease Buruli ulcer. Currently, advanced cases of Buruli ulcer can only be cured by excising the ulcers or amputation of the affected body parts.

In lab tests, the French clay also killed bacteria responsible for many human illnesses, including: *Staphylococcus aureus, methicillin-resistant S. aureus* (MRSA), penicillin-resistant *S. aureus* (PRSA), and pathogenic *Escherichia coli* (E. coli).

Powerful Living LLC is pleased to be able to provide their customers a great source for this nearly miraculous substance. Click on the following link (http://www.survivalclay.com) to learn more about this product and how to order some for yourself. No survival cache should be without it.

There are additional resources at the back of this book that can help you prepare for surviving a nuclear attack. There are suggestions and plans for fallout shelters, along with a list of the products that have been mentioned here and more.

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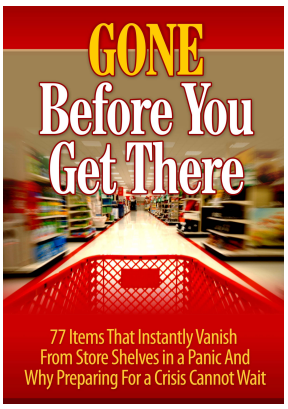
This book has covered surviving a nuclear attack, but there are more than just nuclear weapons that we need to be prepared for. While the devastating aftermath that a nuclear attack produces is not up for argument, there are more dangerous and more insidious means that terrorists can use to destroy the United States.

Biological and chemical weapons can and will be used. These weapons are the weapons of cowards, of people who want to sneak in, wreak destruction, and sneak out. They are the easiest to come by, the cheapest to manufacture, and the most silent and deadly of all weapons choices. I encourage you to read the next book in this two-part series, *He Rides A Pale Horse...and His Name is Death* for the continuing discussion on how to survive a nuclear, chemical or biological weapons attack.

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RESOURCES

Which Items Instantly Vanish From Store Shelves In A Crisis or Meltdown?



Recently one of our researchers completed the definitive report on the top 77 items that literally vanish from store shelves "faster than a rabbit" when hurricanes, earthquakes and killer snowstorms threaten. Yep. It's the stuff that gets hoarded when people freak out about an unknown future. It's also the stuff that will disappear the quickest in the midst of a food shortage or other economic crisis. Every American needs to read this report as soon as humanly possible. You can learn more about this report by going to: www.preparedforcrisis.com.

Double or Triple Survival Garden Production

We've found a product that combines all natural fish emulsion with liquefied kelp which allows the survival gardener to harvest in fewer days, with less (or no) herbicides or pesticides. It yields 200-300% more nutrient dense food as well as dramatically increases shelf life of the produce grown with it. Grow giant vegetables quicker than you thought possible. We highly recommend this all-natural product. Get the details at: www.growlikecrazy.com.



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Free Book Reveals How Squanto's Secret Garden Made the First Thanksgiving Possible

Squantos gardening advice made the First Thanksgiving possible, and now that same advice can help you too. When it comes to gardening, it's not how hard you work, (the Pilgrims were hard workers) it's how much you know that determines success and sometimes even saves lives. Now to help you enjoy a unique American heritage, and grow more life-saving nutritious food… we want you to take a look at the gardening secrets used by Squanto, one of America's greatest unsung heroes. We want you to have some of the very best gardening tips from early colonial history; history that has never been told before. To get your free book, visit: www.firstthanksgivinggarden.com.



Crisis Cooking

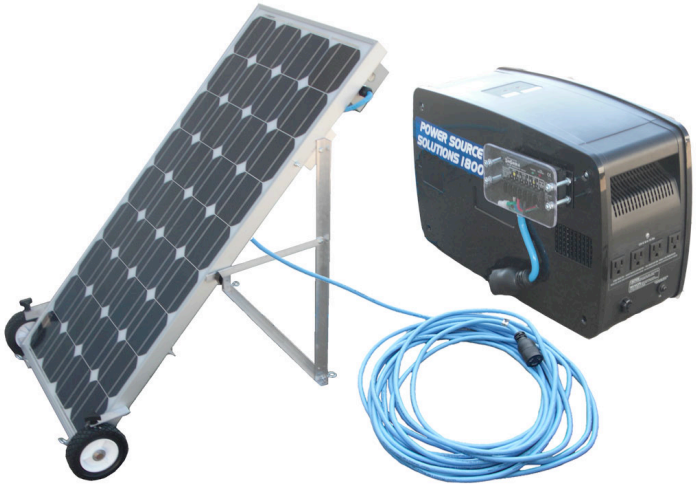


One of the most important areas of surviving a crisis is the ability to cook meals and sanitize water. Without sterilized water, you have big problems with bugs that can make you or those living with you very, very sick. We found an excellent little survival cooker that can use wood, charcoal or propane as fuel, which makes it a pretty versatile tool. You can read more about it at: www.crisiscooker.com.

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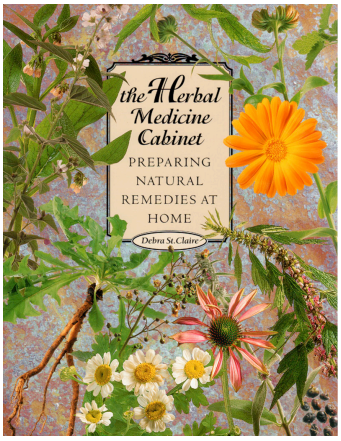
New Solar Powered Generator Produces "Off the Grid" Back-Up Power

If you have ever wanted to have an emergency "backup" system that supplies continuous electrical power, this will be the most important website you will ever visit. Here is why: There is now a completely portable (and ultra-high efficient) solar power generator which produces up to 1800 watts of household electricity on demand when you need it most. News of this "solar backup generator" (it's the first "off-the-grid" breakthrough in 50 years) is spreading like wildfire all across the country!

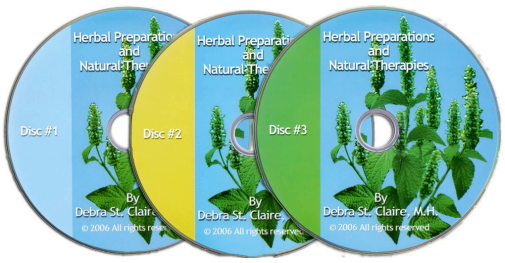


Additional information on this unit can be found at: www.mysolarbackup.com.

Making Your Own Herbal Medicines



To monopolize the market, the pharmaceutical companies are pushing for new strict FDA regulations, and whenever possible, a new outright ban on many herbs. A total ban on raw herbs will be difficult, considering that herbs grow wild in practically every field and backyard in the country. What they can ban, however, is the production and the sale of herbal products. And, believe it or not, that is already happening.

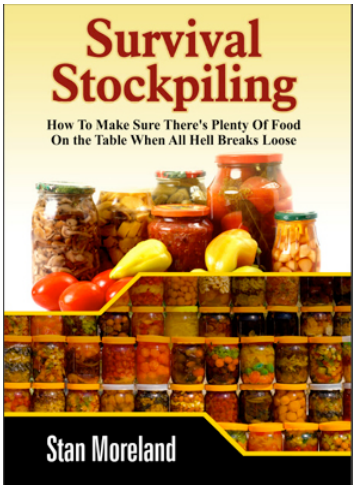


Debra Nuzzi St. Claire is a Master Herbalist who has been studying and teaching herbal medicine for the last 20 years. She has taught and lectured internationally on the preparation

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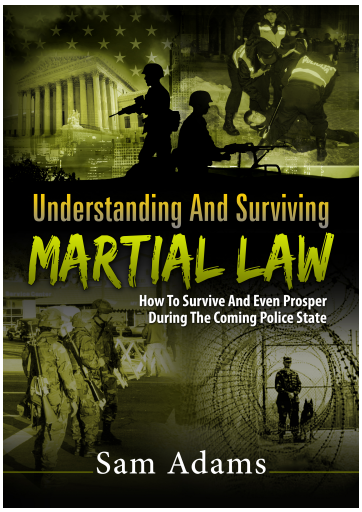
and use of herbs. She has formulated over 270 products for the natural health care industry. And, she has developed the most phenomenal herbal program I have ever seen. It is called, “Herbal Preparations and Natural Therapies — Creating and Using a Home Herbal Medicine Chest.” When you finish watching these DVDs, you’ll know more about the preparation of herbs than 99.9% of the doctors in this country. And believe me, it could turn out to be some of the most precious information you’ll ever learn. Find out more information at: www.makeherbalmedicines.com.

The “Stay Alive” Blueprint Our Elitist Rulers Don’t Want You to See...



This new book teaches you how a crippled 92 year-old survived the Katrina Disaster, without government help and how her secrets can keep your family alive in a crisis. Not only do you receive excellent information on how to prepare for the potential food crisis, but you also get the reprint rights to this book so you can share it with your friends and family. You can learn more about preparing you and your family for the worst by going to: www.survivalstockpiling.com.

How to Survive And Even Prosper Under Martial Law



Understanding and Surviving Martial Law has demonstrated to me that our government is no longer concerned with protecting the public. Our government now exists to benefit a select few and the rest of us are wage slaves. Listen, even though things on the surface seem normal, they are not. It’s the calm before the engineered storm. I firmly believe that conditions in this country are going to deteriorate rapidly once the right “event” triggers a crisis. Despite advice from well

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meaning friends, I felt I owed it to my fellow citizens who have been lulled into pacificity by promises of 'hope' and 'change'. However, this information is only for the stout of heart, because what you will learn about it may shake your patriotism deeply. You can find out more information on *Understanding and Surviving Martial Law* at: www.martiallawsurvival.com.

ADDITIONAL RESOURCES

Go to our web site www.powerfulliving.com for additional resources, products and literature for your survival and self-reliant living needs.

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APPENDIX
INFORMATION & BUILDING PLANS FOR YOUR FALLOUT SHELTER

THE PLANS ON THE FOLLOWING PAGES ARE A COMPILATION OF THE FEMA LITERATURE AVAILABLE FROM YOUR LOCAL EMERGENCY MANAGEMENT AGENCY OR FROM THE GOVERNMENT PRINTING OFFICE.

THIS INFORMATION AND THESE PLANS HAVE BEEN PROVIDED AS A CONVENIENCE TO YOU, OUR READERS.

THANK YOU FOR YOUR CONTINUED SUPPORT, AND MAY GOD BLESS AND KEEP YOU ALWAYS.

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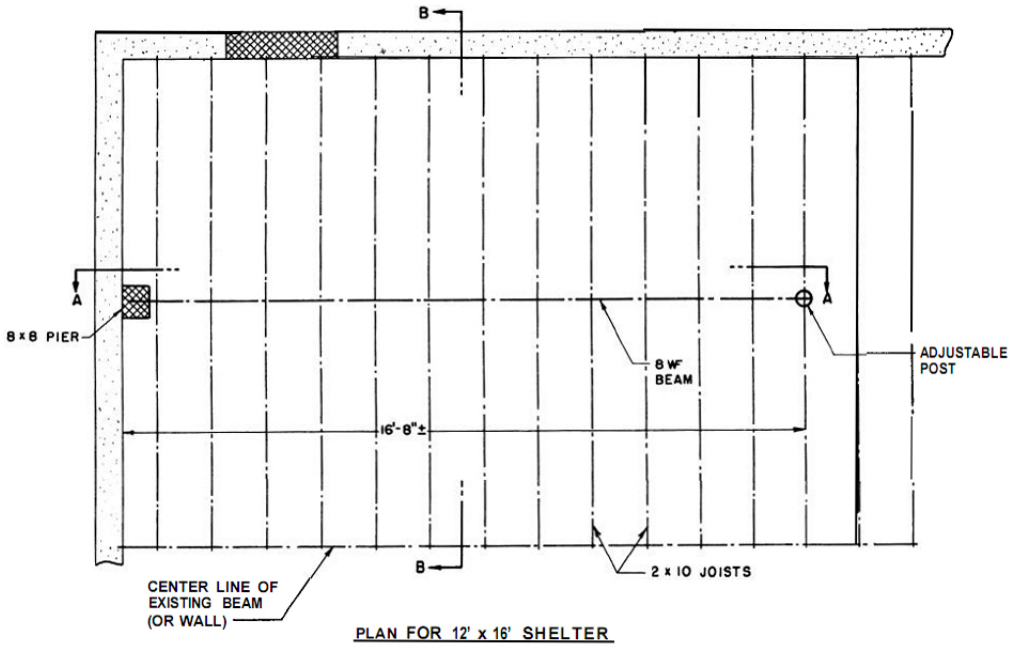
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Protection is provided in a basement corner by bricks or concrete blocks between the overhead joists. A beam and jack column supports the extra weight.



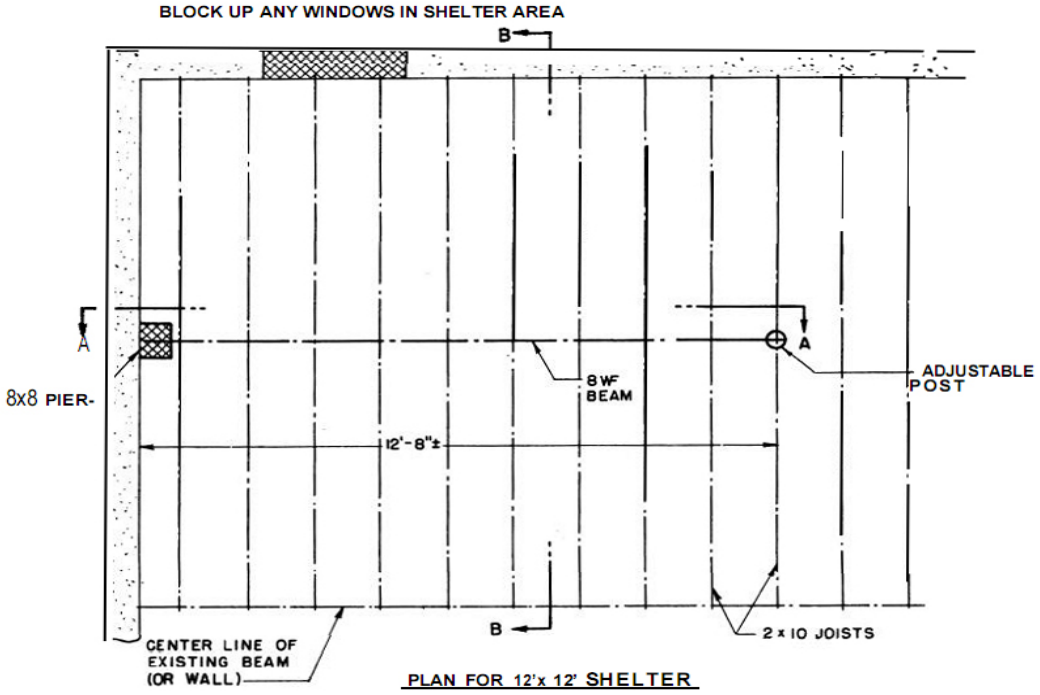
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HOME FALLOUT SHELTER
modified ceiling shelter-basement location
(Plan A)



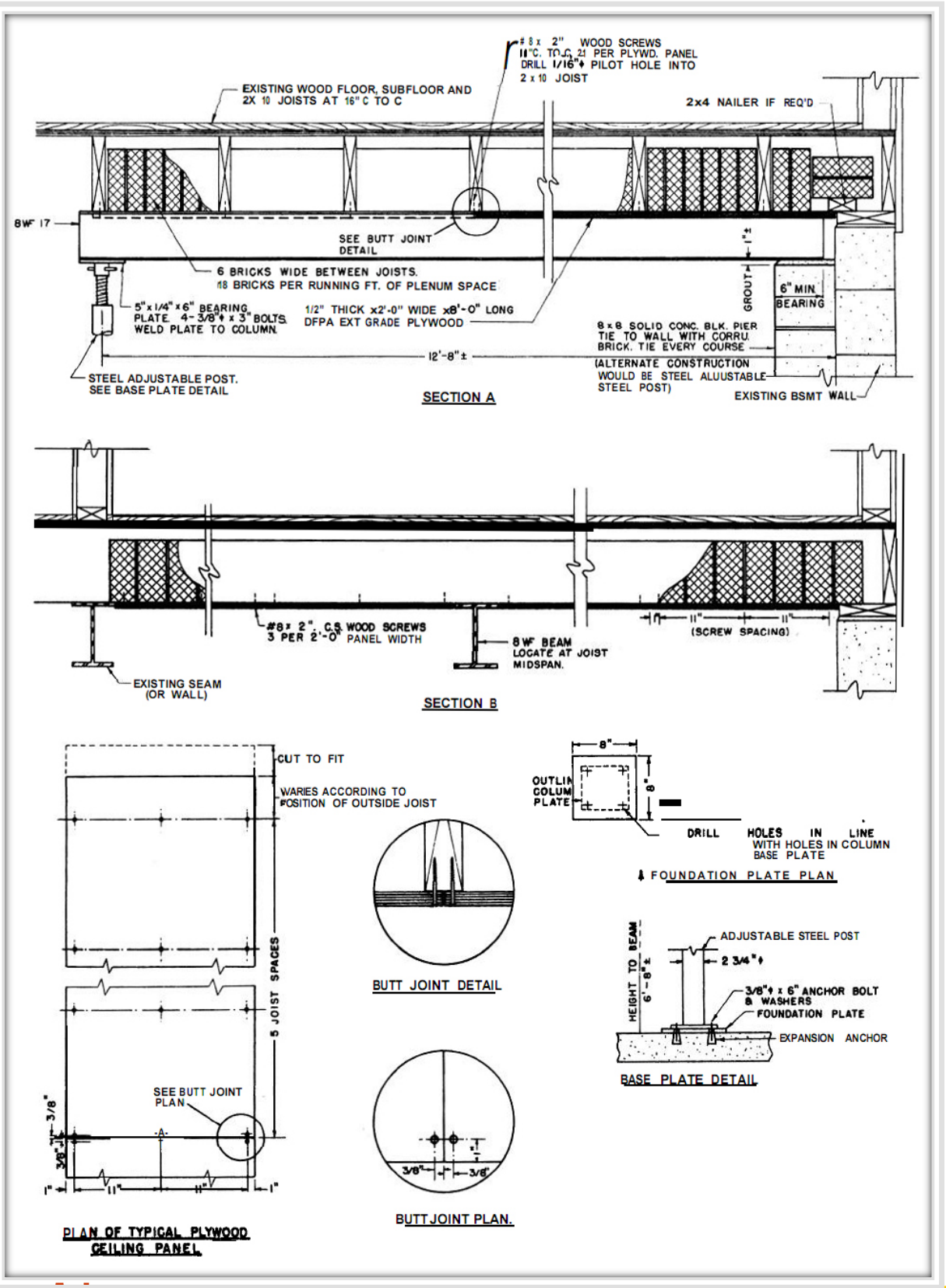
PLAN FOR 12' x 16' SHELTER

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PLAN FOR 12'x 12' SHELTER

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CAUTION

This home fallout shelter design should only be constructed in low risk areas. A low risk area is one which is not expected to be subjected to the blast effects of a nuclear weapon. It is suggested you contact your State or local civil preparedness director for information concerning the type of area you live in, i.e., low risk or high risk area.

GENERAL INFORMATION

This shelter can be permanently installed in the basement of your home and will not interfere with its utility in any way.

In basements whose walls are mostly below grade on all four sides, adequate shelter from fallout radiation is provided by modifying the overhead floor joist and ceiling construction as shown in the drawings. The plywood, which is screwed to the bottoms of the joists, supports the masonry shielding material and provides a solid base for a more decorative ceiling treatment. A beam and jack post are used to support the extra weight. Approximately 2 man days are required to construct the ceiling.

SHELTER SIZE

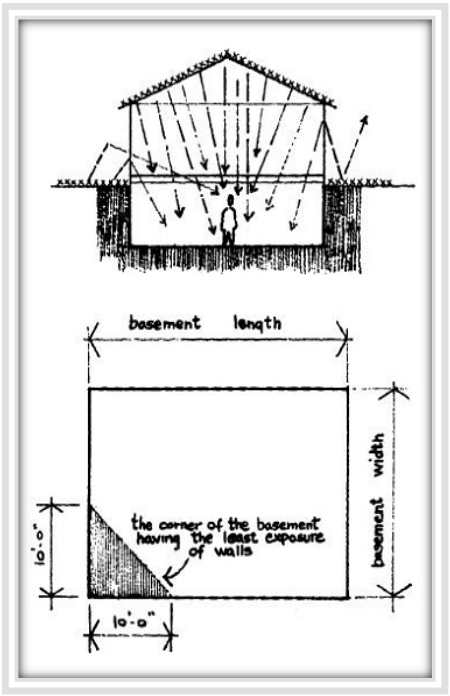
The plans on the preceding pages show two sizes of shelters of this type a **12' x 16'** size, which may be suitable for use in many one story homes, and a **12' x 12'** size, which is suitable for use in many two story homes.

On the following pages, under LIMITATIONS OF THE CEILING MODIFICATION SHELTER IN BASEMENTS, you will find illustrations of the conditions which make this type of construction an effective shelter, and some additional things that must be done if these conditions are not met by your particular basement situation.

Note that if some joist spaces contain heating ducts, or are closed in with sheet metal to serve as return air ducts, the protection in this area of the shelter is reduced since bricks or blocks cannot be placed as shown in the drawings.

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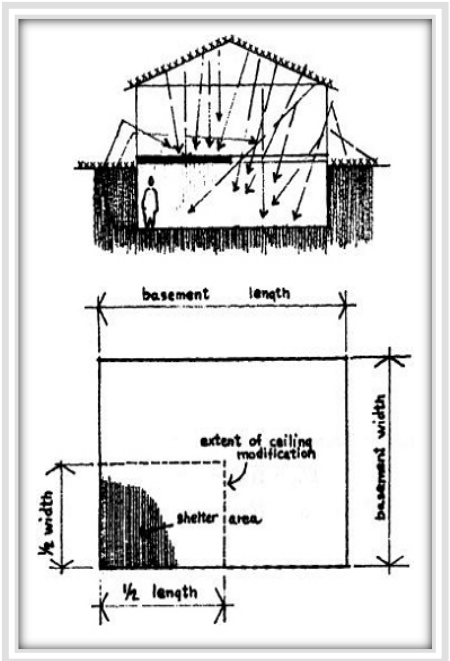
LIMITATIONS OF THE CEILING MODIFICATION SHELTER IN BASEMENTS



This cross-section of a one story house shows radiation coming into the basement from fallout particles on the roof and the ground, Most of the radiation comes from the roof because of the shielding effect of the ground outside the basement walls.

The shaded area in the basement floor plan shows the location of the best potential shelter area (approximately 50 square feet). The drawings on the preceding pages are for the adding of bricks or blocks in the ceiling over this best corner.

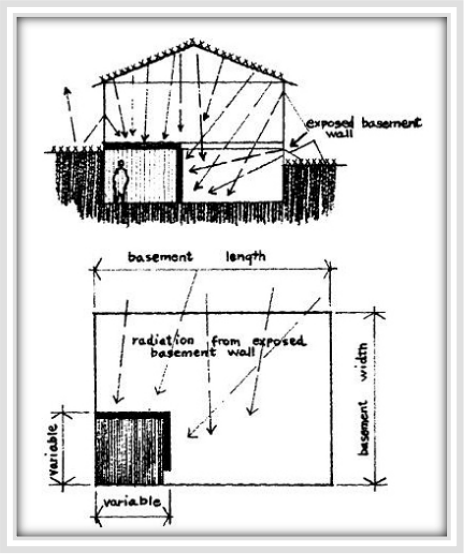
This placement of added weight in the proper portion of the basement ceiling will considerably improve the protection in the best corner. Note that is not necessary to add this weight to the entire ceiling area.



The extent of the ceiling modification area depends on the type of house (i. e., one or two story), the dimensions of the basement, and the amount of basement wall exposure. In a one story house, approximately one quarter of the area of the basement ceiling should be filled with the concrete blocks or bricks in order to obtain the most protection out of this improvement.

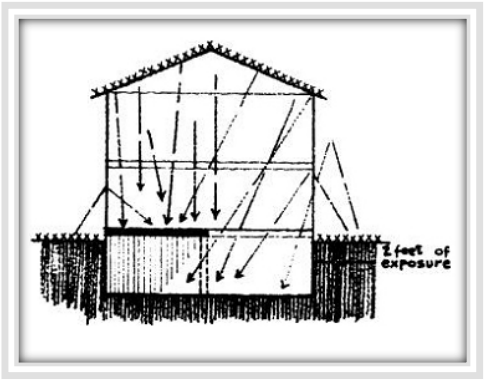
This arrangement will effectively shield all of the radiation coming from the roof -the largest contributing source.

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If it is found to be impractical to shield one quarter of the basement ceiling area, the extent of ceiling modification may be reduced to any desired size by constructing vertical masonry walls on the two open sides of the shielded area, thus providing a room suitable for use as a hobby or laundry room. These masonry walls will also provide protection from excessive amounts of radiation coming through exposed portions of the basement wall.

In homes with 2 or more stories above ground, the extent of the basement ceiling modification can usually be reduced to 12' x 12'. Note, however, that vertical side walls may be required if the basement wall exposure exceeds two feet.



Adding bricks or blocks to the basement ceiling can also create shelter in certain portions of the basements of split-level houses. It is recommended that expert advice be sought for basement situations which do not fit the plan sizes or illustrations in this pamphlet.

The MATERIALS LIST shows quantities for the two plan sizes shown. If additional materials are required for the building of shielding walls in an emergency, they must be added to the list.

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MATERIALS LIST Item	Actual Number Required For 12’ x 16’ Size	Actual Number Required For 12’ x 12’ Size
Masonry : 4” x 8” x 16” solid concrete blocks or 2-l/4” x 4” x 8” bricks 8” x 8” x 8” solid concrete blocks (standard stone aggregate no-sand forming)	432 blocks or 2492 bricks 10	330 blocks or 1978 bricks 10
Mortar: Prepared dry-mix bags	l bag	
Plywood sheets: (cut to fit exact basement dimensions) l/2" 5-ply Utility B-C grade, good one side. 2’-0” x 8’-0” sections 2’-0” x 4’-0” sections	12	6 6
Steel: 8WF17 Beam (Determine length from basement dimensions). Maximum span 16’-0” * Adjustable steel posts with tubes 13 ga., top tube 2-l/2", bottom tube 2-3/4” with 5” x 6” x l/4” plate welded to each end. 8” x 8” x 3/8” extra base plate, 4-7/16” holes in each plate.	1 1 1	
Hardware : 3/8” x 3” sq. head unfinished bolts each with 2 washers and nuts 3/8” x 6” sq. head unfinished bolts each with 1 washer and nuts 3/8” size multiple-expanding machine bolt anchors hole size is 3/4” x 2-7/8”	4 4	4 4

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Corrugated brick ties, galvanized steel 23 ga., 7/8" x 7"	16	16
#5 screw gage size lead insert shields, hole size l/4" x l-1/2"	16	16
#5 x l-1/2" unfinished wood screws	16	16
#8 x 2" cad. plated wood screws, c. s.	260	195
Special tools : l/4" and 3/4" star drills to install anchoring devices *Greater depth required for longer spans		

CONSTRUCTION SEQUENCE

1. Drill holes in block wall for lead insert shields and attach corrugated ties with screws, two per mortar joint.
2. Lay up 8" x 8" masonry pier against wall, tying pier to wall with corrugated ties.
3. Locate and drill for machine bolt anchors in basement floor using base plate of jack post for template.
4. Thoroughly coat under side of foundation plate with rust-inhibiting paint.
5. Place foundation plate and base plate of jack post over anchors and drive anchor bolts tight.
6. Lower jack and bolt one end of steel beam to top plate, resting other end temporarily on top of pier.
7. Raise jack to level position of beam, shimming under pier end to a snug fit under the joists. PRECAUTIONARY NOTE: Excessive tightening of the jack post at this point may cause undue stress in the joists and slab, as the ceiling spaces are filled. Make several adjust¬ments in the post as the material is added.

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8. Grout mortar under beam at pier.
9. Cut plywood into 2 'x 8' sheets.
10. Starting at wall, attach plywood to joist bottoms, using 2" #8 screws.
11. Remove cross bridging, if any, from existing joist spaces.
12. Fill the joist spaces with blocks or bricks.
13. Repeat steps 10, 11 and 12 for each of the other sheets.

Before constructing the shelter described here, you should check to see that the construction conforms to your local building codes, and whether a building permit is required.

If work is to be done by a builder or contractor, it is recommended that firms be retained that carry necessary issuance and guarantees to properly protect the owner against subsequent liability and claims on the work and to ensure satisfactory results. Members of the National Association of Home Builders and the Associated General Contractors meet these and other requirements of protection for the home owner.

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(C)

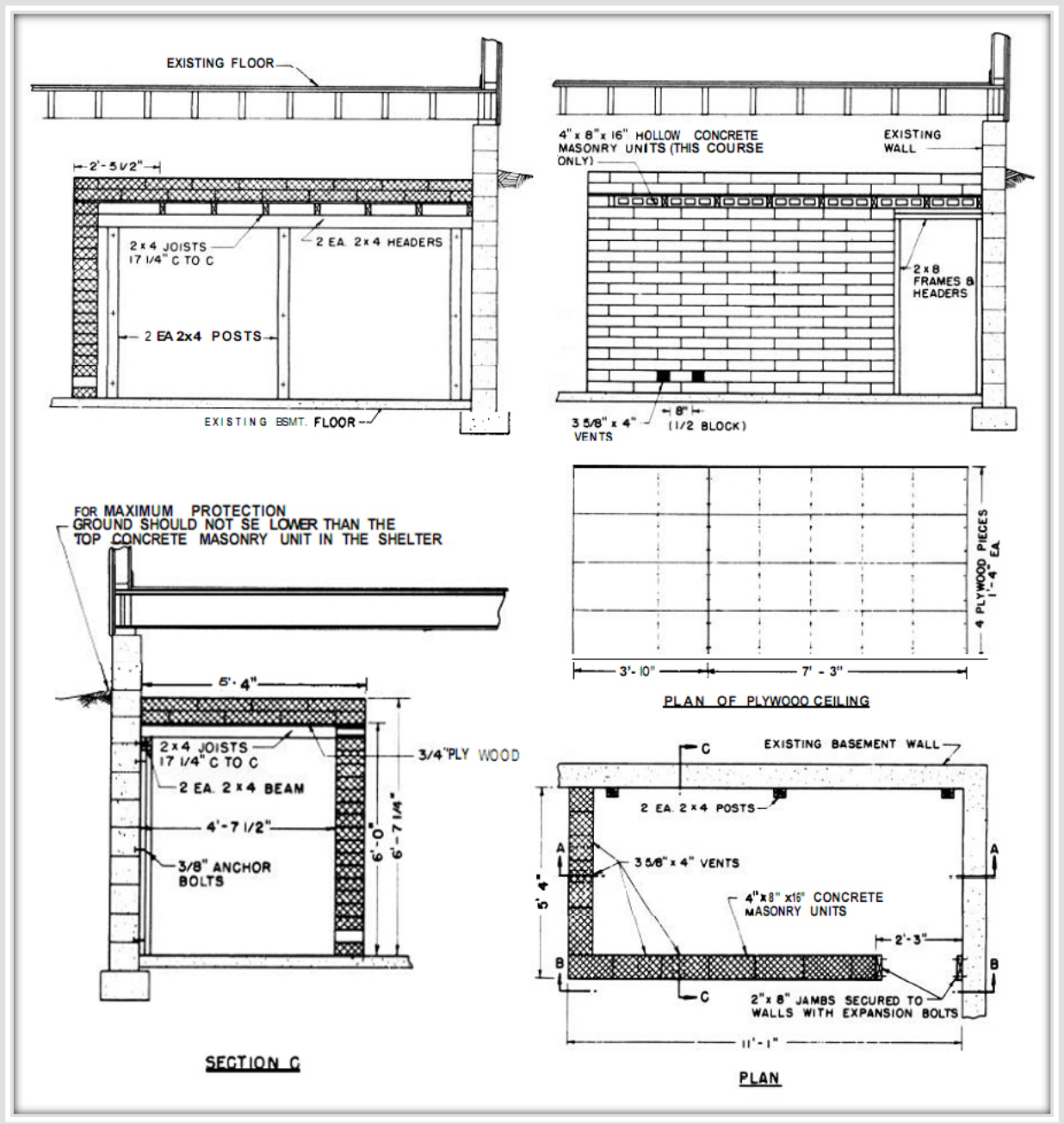
A compact shelter is provided in a basement corner by the use of common lumber and concrete blocks with mortar joints for permanent construction.



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HOME FALLOUT SHELTER concrete block shelter-basement location (plan C)



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GENERAL INFORMATION

This compact basement shelter will provide low-cost protection from the effects of radioactive fallout. Its purpose is to provide adequate protection for the minimum cost in an existing basement. In addition to the low cost, materials should be readily available, and the labor time will be short.

TECHNICAL SUMMARY

This shelter has about 50 square feet of area, 300 cubic feet of space and will provide shelter for five persons.

The materials required to build this shelter are obtainable at local concrete block plants and/or lumber yards.

Natural ventilation is provided by the entranceway and the air vents in the shelter wall.

Estimated construction time for the basic shelter is less than 44 man-hours.

MATERIALS LIST	Actual Number Required
Masonry : 4” x 8” x 16” solid concrete masonry units or 2-l/4 x 4” x 8” solid bricks 4” x 8” x 16” hollow concrete masonry units	 296 blocks or 1776 bricks 7 blocks
Lumber: (“Construction” or “No. 1” grade or better) posts 2 x 4 x 5’-4” joists 2 x 4 x 5’-4” beams 2 x 4 x l0’-5-l/2” frame 2 x 8 x 5’-4-3/8" header 2 x 8 x 2’-3” plywood l'-4” x 6’-9-l/4” x 3/4” (utility B-C grade)	 6 7 2 2 2 4 pieces

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plywood 1’4” x 4’-3-3/4” x 3/4” (utility B-C grade)	4 pieces
Hardware: 8d nails 10d nails 3/8” bolt size multiple-expanding machine bolt anchors 3/8” x 3-l/2” square-head unfinished anchor bolts Mortar (prepared dry-mix bags	 2 pounds 2 pounds 18 18 9 bags
Special tools: 3/4” star drill for 3/4” x 2-7/8” anchor bolts	

CONSTRUCTION SEQUENCE

1. Lay out guidelines with chalk on basement floor for shelter walls.

2. Lay first course of 4” x 8” x 16” solid blocks in a full bed of mortar to make the walls 8” thick. Vary the thickness of mortar bed if basement floor is not level.

3. Set door frame in place and continue to lay wall blocks. Be sure to leave the 4 ” spaces for air vents as shown on the drawing.

4. Continue this procedure until the walls have been laid up to a height of 5’-8” (17 courses). This height can be increased, if the basement headroom permits and provided the shelter roof remains below the outside ground level.

5. Fasten posts and door frame to the basement wall using two expansion anchors and bolts for each. Be certain the posts rest on the floor.

6. Nail two 2 x 4 boards together to make the wall beam. Nail the beam on top of the posts and secure with expansion anchors and bolts to the wall.

7. Place wood joists in position and secure with nails.

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8. Place the 4” x 8” x 16” hollow blocks between joists as shown on the drawing. The holes in the blocks will afford ventilation.

9. Put several 3/4” pieces of plywood on the joists as shown and nail them to the joists with 8d nails.

10. Lay two layers of solid 4” x 8” x blocks flat on top of the plywood; stagger the joints. Mortar is not required in the ceiling.

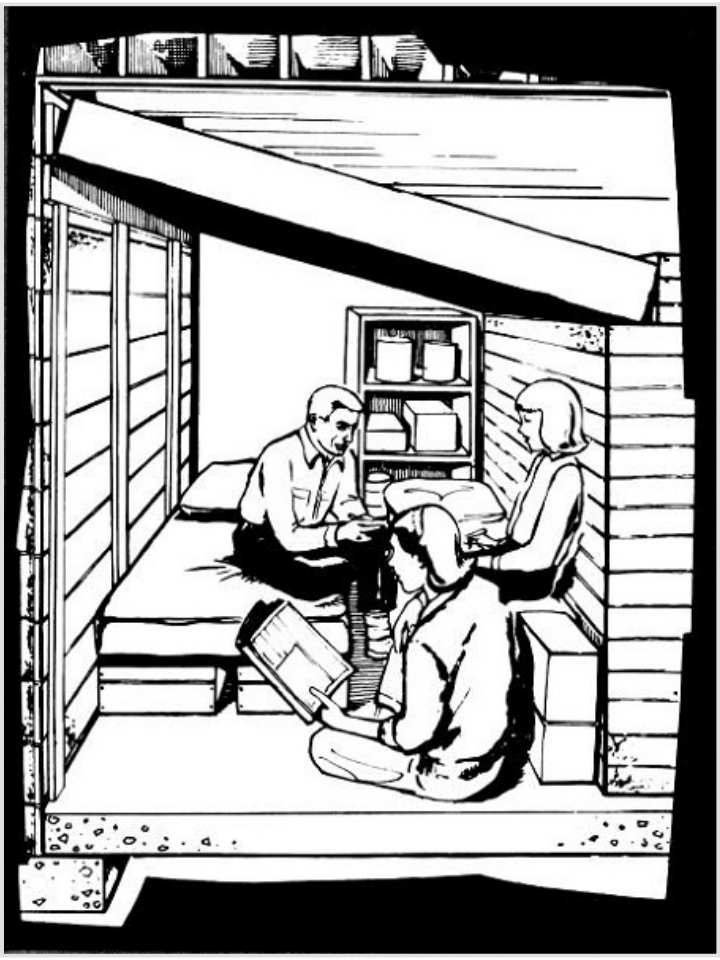
11. Continue procedures 9 and 10 until the roof is completed.

12. Additional blocks stored in the shelter are for stacking in the entryway after occupancy.

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(E)

A storage unit is hinged to the wall in a basement corner. It is tilted-up to rest on stacked brick or concrete block and filled for overhead protection.

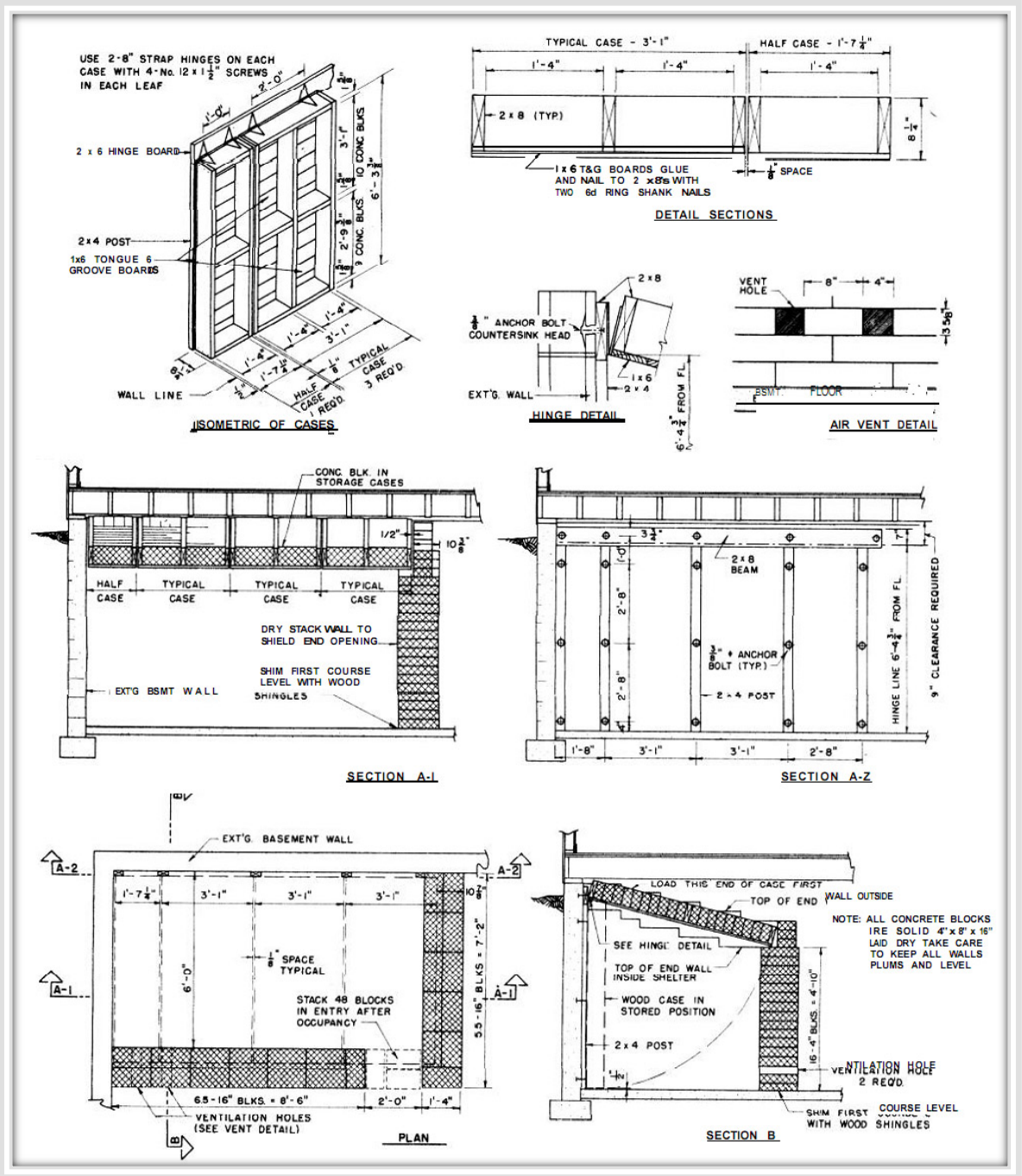


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HOME FALLOUT SHELTER

tilt-up storage unit shelter-basement location (plan E)



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GENERAL INFORMATION

The principal feature of this shelter is a roof composed of tilt-up storage units, the top of which is hinged to the wall. The units can be used as book cases, pantry shelves, or for miscellaneous storage. In an emergency, the storage units can be tilted up so that they rest on a stacked masonry wall built from materials stored nearby the units. In basements where the outside ground level is above the top of the tilted-up units, adequate shelter from fallout radiation is provided by filling the units with brick or solid concrete block 8” thick. The shelter will house 6 people.

Approximately 2 man days are required to construct the storage units. The materials are readily available, from retail lumber yards.

MATERIALS LIST	Actual Number Required
Masonry: 4” x 8” x 16” solid concrete masonry units or 2-l/4” x 4” x 8” solid bricks	575 blocks or 3450 bricks
Lumber: (“Construction” or “No. 1” grades or better) posts 2 x 4 x 6’-4-l/4” beam 2 x 8 x l0’-11-5/8” 3 cases plus half case 2 x 8 x 6’-3-3/8” 2 x 8 x 6’-O-1/8” 2 x 8 x l’-4” 2 x 8 x 2’-9-5/8” 1 x 6 x l’-7-l/4” T & G* 1 x 6 x 3’-1”T & G *	 5 pieces 1 piece 8 pieces 3 pieces 9 pieces 6 pieces 13 pieces 39 pieces
Hardware: 3” x 8” x l/8” unfinished steel strap hinges #12 x l-1/2" wood screws, c. s.	 8 64

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3/8” diam. x 6” square head unfinished anchor bolts 3/8” bolt size multiple-expanding machine bolt anchor 6d ring shanked nails glue, protein emulsion (must develop 450 lbs. /sq. in.) l-1/2 pints 16d common nails 3 pounds *Square edge boards may be used.	20 20 3 pounds 3 pounds
Special tools: bubble level to insure wall is level as it is stacked 3/4” star drill for making anchor holes in existing basement wall	

CONSTRUCTION SEQUENCE

1. Prepare wood case units.

a. Assemble wood units in accordance with drawings on sheet 2.
b. Fasten hinges to hinge board with l-l/2” #12 * wood screws.
c. Locate and drill holes in basement walls to receive machine bolt anchors.
d. Bolt hinge board and 2 x 4 posts to wall with 3/8” anchor bolts.
e. Fasten wood case units to hinges with l-1/2” #12* wood screws.

2. Provide suitable storage location for required concrete block.

3. Assembly of shelter.

a. Remove items stored from wood case units.
b. Mark location of shelter walls on floor with chalk.
c. Move concrete blocks lo shelter location.
d. Lay first course of blocks for shelter walls, shimming block as required with wood shingles until course is level. It is important that the wall be stacked as nearly level and plumb as possible for stability.
e. Tilt up case units in corner of basement and support temporarily with 2 x 4 prop or household step ladder. Build-up 16” concrete block wall to support case units.
f. Remove prop, lower case units to block wall and fill case units with concrete blocks.
g. Build end wall up above the side of the end storage unit.

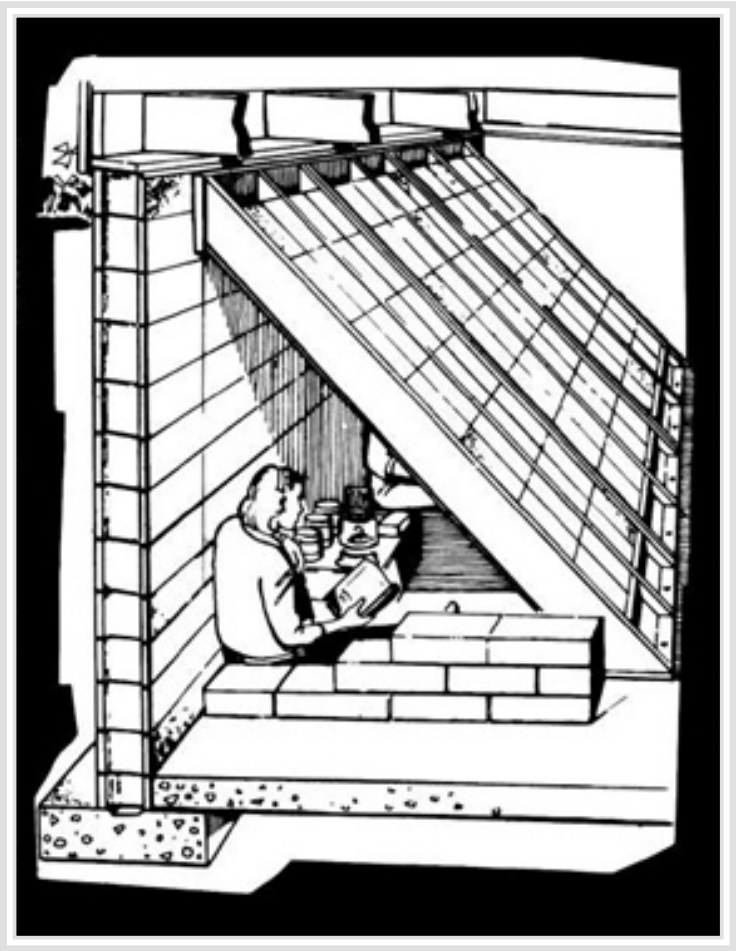
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h. Move 48 concrete blocks into shelter.
i. Occupy shelter and fill entry with 48 blocks.

* Drill lead holes 5/32” in diameter, l-3/8” deep and shank lead holes 3/16” in diameter, 3/8” deep.

(F)

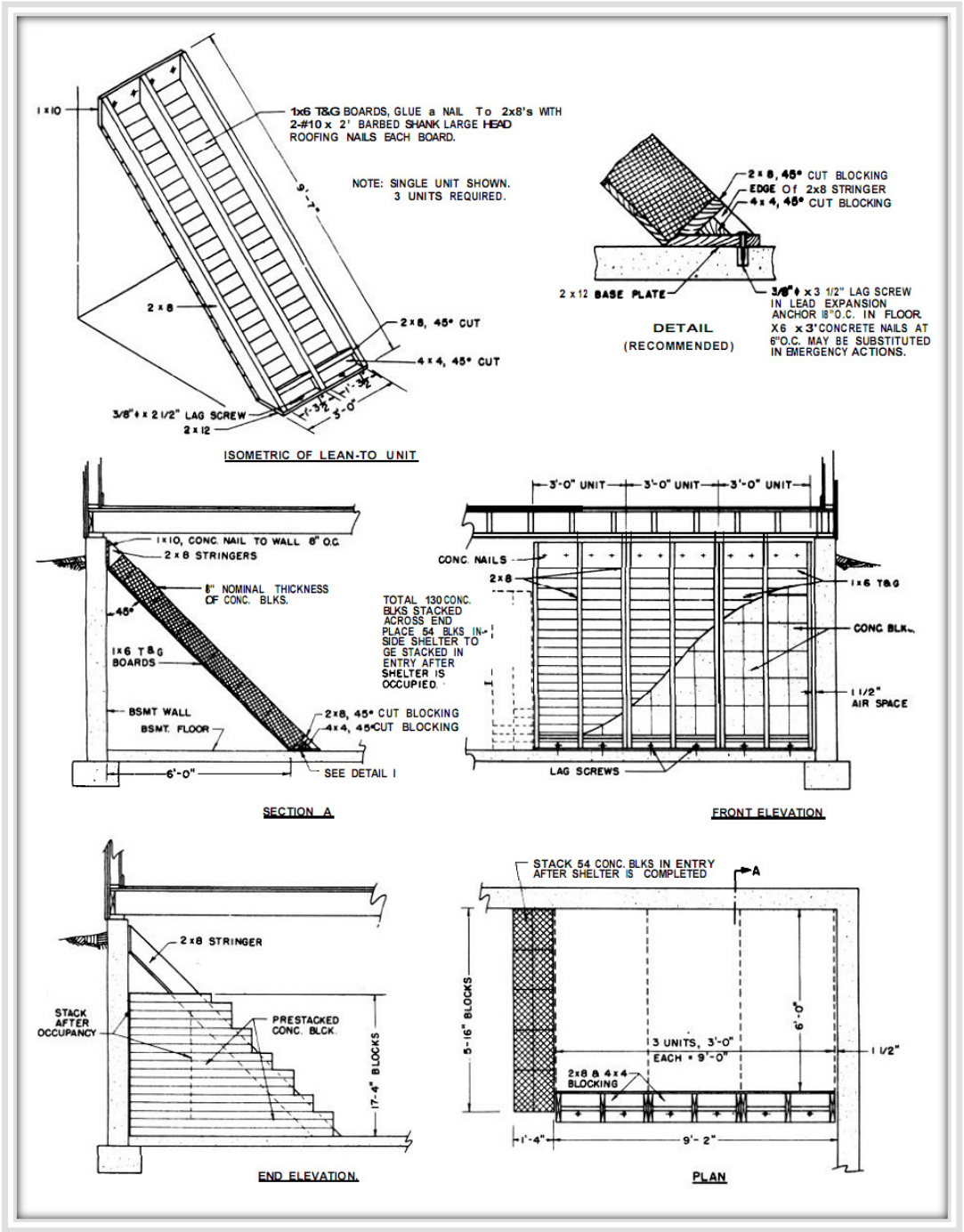
Pre-built wood components stored in the basement may be assembled and filled with bricks or concrete blocks for emergency protection.



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HOME FALLOUT SHELTER
lean-to shelter-basement location (plan F)



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GENERAL INFORMATION

This shelter is designed to provide protection from the effects of radioactive fallout in the below grade basement of an existing house. Its advantages are low cost, simplicity of construction, general availability of materials, and the fact that it may be easily disassembled.

TECHNICAL SUMMARY

This shelter design will provide 54 square feet of area and approximately 216 cubic feet of space. It will house three persons. The shelter length can be increased by increments of 3 foot panels. The height may be in¬creased by the use of more materials. This increase will be limited by basement height and handling of the panels.

The materials necessary to construct this shelter should be available from retail lumber yards.

Natural ventilation is obtained by omitting 3 blocks from the top of the entranceway closure and by leaving a l-1/2 in. gap between the end of the shelter and the basement wall.

Construction time should not exceed 20 man-hours when all the materials are on hand at the shelter location. It is desirable to preassemble the lean-to units and store them in a corner. They can then be installed in the best corner of the basement and stacked with blocks in 1 hour.

MATERIALS LIST	Actual Number Required
Masonry : 4” x 8” x 16” solid concrete masonry units or 2-l/4” x 4” x 8” solid bricks	290 blocks or 1740 bricks
Lumber: (“construction” or “No.1” grades or better) stringers 2 x 8 x 9’-7” (45” diag. cut at both ends	9 pieces

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boards 1 x 6 x 3'-0" T & G (square edge may be used) 1 x 10 x 3'-0" 2 x 10 x 3'-0" blocking 2 x 8 x l'-3-l/2 stress-grade lumber 4 x 4 x 1'-3-l/2" *Rip lengthwise at 45" to provide the 6 pieces required	69 pieces 1 piece 1 piece 6 pieces 3 pieces
Hardware: 3/8" diam. x 2-1/4 lag screws and washers 3/8" bolt size lead expansion shield, 9/16 x2" hole # 10 ga, x 2" barbed shank, large head roofing nails 16D common nails glue, protein emulsion (must develop 450 lbs. / sq. in.) #5x3" concrete nails	 12 12 3 pounds 1 pound 1-1/2 pints 36
Special tools: 9/16" star drill to install anchor bolts into concrete basement floor and walls	

CONSTRUCTION SEQUENCE

1. Prepare shelter units.

   a) Cut **45º** bevels on 2 x 8 stringers. Arrange in 3 foot panels. Using 16d common nails, attach bottom boards and blocking on the beveled ends first.
   b) Fit in, glue and nail remaining bottom boards with large head roofing nails.
   c) Units can be stored assembled, if desired, to save time. It is desirable to locate lag screw holes and install lead shields in floor and basement wall.

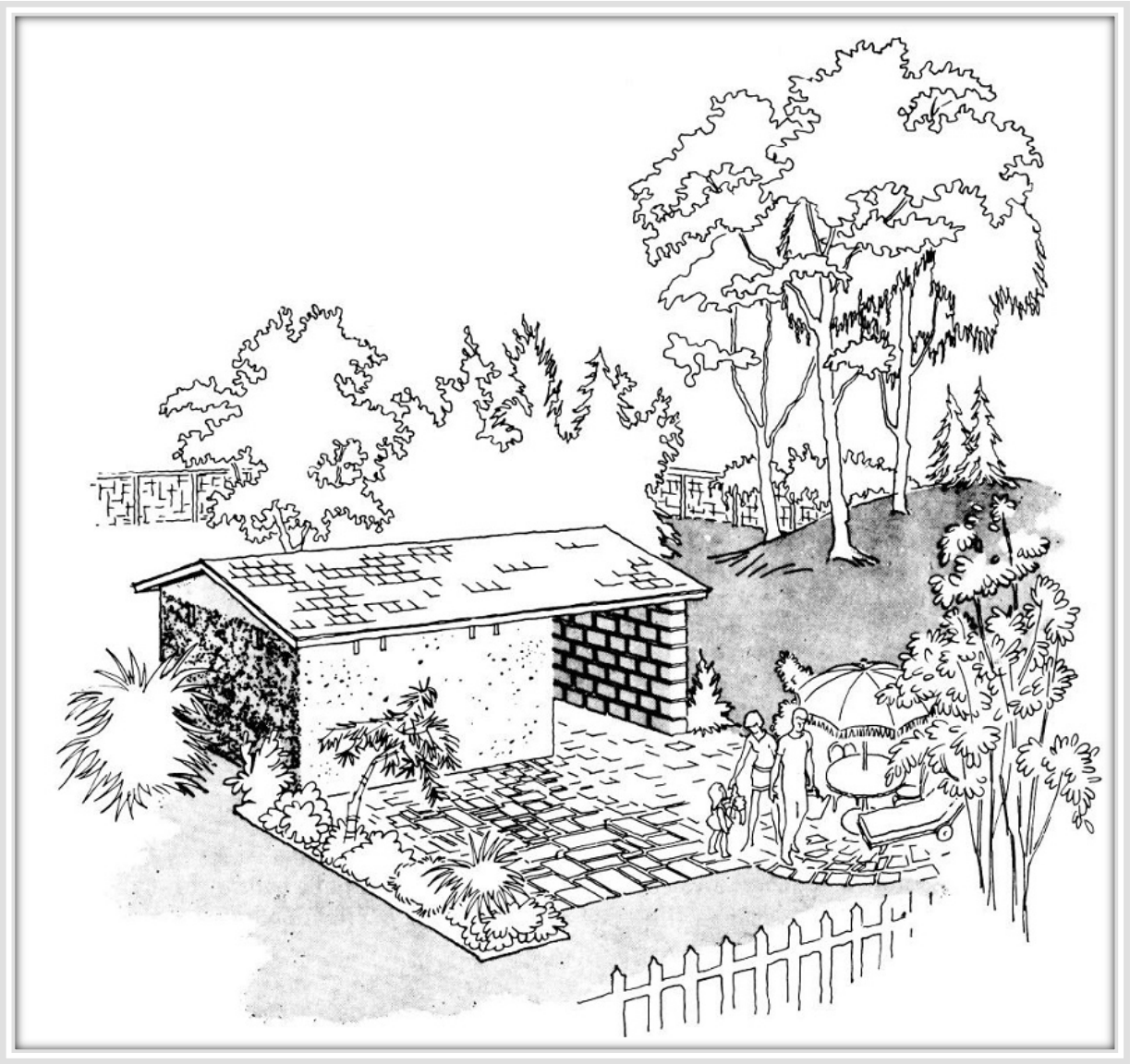
2. Assemble shelter (emergency actions)

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a) Turn this panel right side up and place it in its permanent position. Fasten the panel to the floor with lag screws in lead shields leaving a l-1/2” gap between the end of the shelter and the basement wall. If lead shields have not been installed ahead of time, use concrete nails as shown in the detail.
b) Fasten in sequence as many panels as are to be used. Nail to wall with concrete nails.
c) Fill panels with 2 layers of solid concrete block or brick starting at bottom.
d) Build end wall of 76 stacked blocks 456 bricks.
e) Place 50 blocks or 300 bricks in the shelter for emergency closure of entranceway.

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ABOVEGROUND HOME SHELTER



Protection is provided in an outside aboveground shelter. The shelter can be used as a tool shed or workshop.

H-12-2
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GENERAL INFORMATION

This family shelter is intended for persons who prefer an aboveground shelter or, for some reason such as a high water table, cannot have a belowground shelter. In general, below-ground shelter is superior and more economical than an aboveground shelter.

The shelter is designed to meet the standard of protection against fallout radiation that has been established by the Federal Emergency Management Agency for public fallout shelters. It can also be constructed to provide significant protection from the effects of hurricanes, tornadoes, and earthquakes, and limited protection from the blast and fire effects of a nuclear explosion. 1/ It has sufficient space to shelter six adults.

The shelter can be built of two rows of concrete blocks, one 12” and one 8”, filled with sand or grout, or of poured reinforced concrete. Windows have been omitted; therefore, electric lights are recommended for day to day use.

The details and construction methods are considered typical. If materials other than shown are selected -- for example, concrete block faced with brick -- care should be taken to provide at least the same weight of materials per square foot: 200 lb. per sq. ft. in the walls and 100 lb. per sq. ft. in the roof. The wood frame roof over the reinforced concrete ceiling probably would be blown off by extremely high winds such as caused by a blast wave or tornado. However, the wood frame roof is intended primarily for appearance; the concrete ceiling provides the protection. When using the shelter for protection against high winds, DO NOT place the concrete blocks in the doorway or windows.

This structure has been designed for areas where frost does not penetrate the ground more than 20 inches. If 20 inches is not a sufficient depth for footings, one or two additional courses of concrete blocks may be used to lower the footings. Average soil bearing pressure is 1,500 lb. per sq. ft. Most soils can be assumed to support this pressure without special testing or investigation.

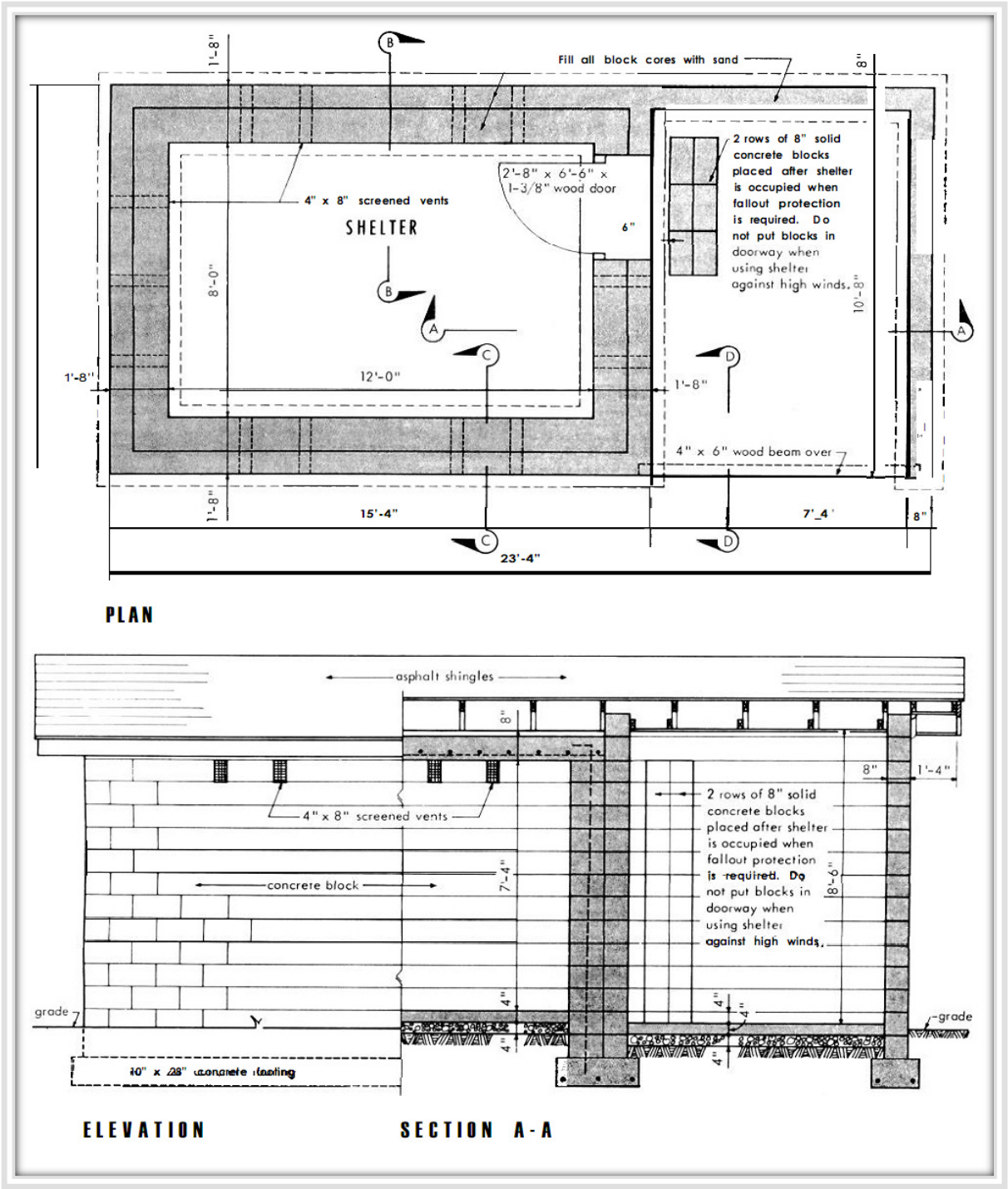
The baffle wall outside the entrance to the shelter is extended out 7’-4” to allow storage of lawn equipment such as wheelbarrows and lawn mowers. If additional space is desired, extend this dimension.

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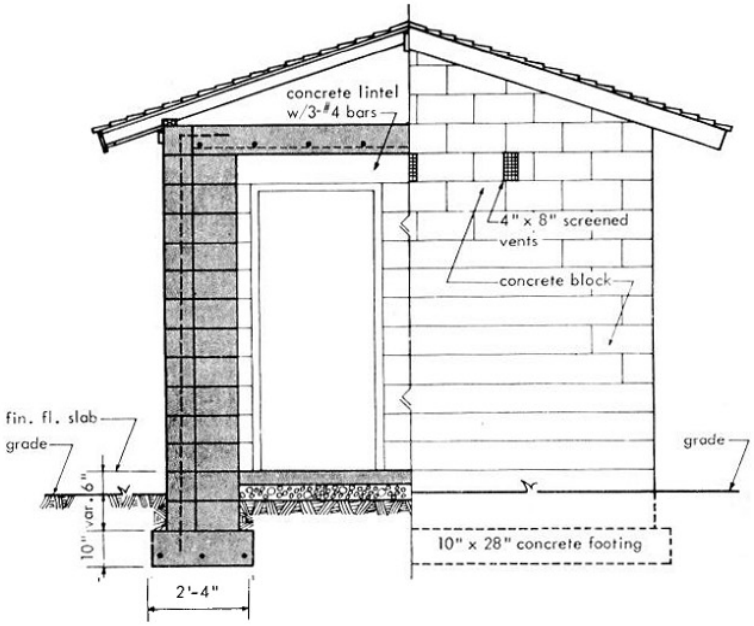
Before starting to build the shelter, make certain that the plan conforms to the local building code. Obtain a building permit if required. If the shelter is to be built by a contractor, engage a reliable firm that offers protection from any liability or other claims arising from its construction.

I/ This shelter will withstand over-pressures of up to 5 p.s.i.

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SECTION B-B ELEVATION

NOTES

Provide horizontal joint reinforcement for 1'-8" walls in every third course and metal cross ties at 2'-0" o.c. in every alternate course.

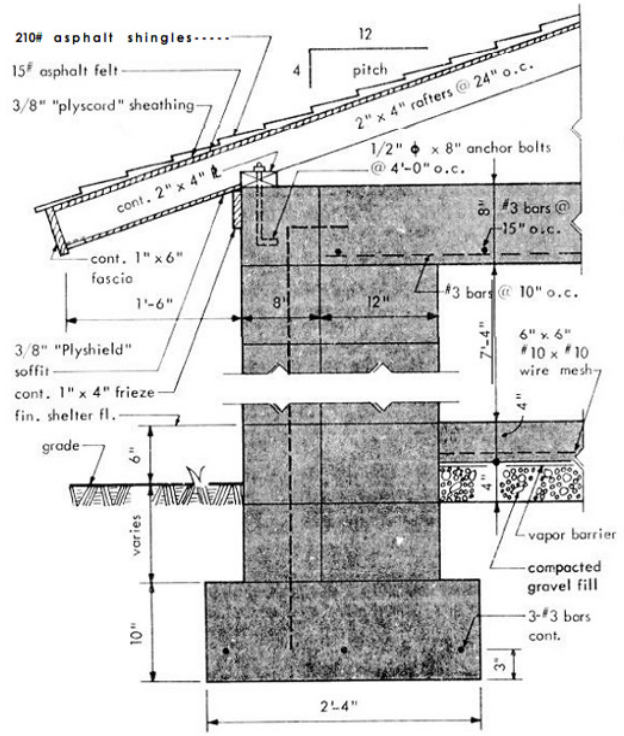
If concrete is used in place of block, the walls of the shelter shall be 1'-2" thick with #4 bars at 14" o.c., each way, each side.

The dimension from finish grade to bottom of footings is dependent upon the depth of frost and varies with geographic location. Consult your local building code.

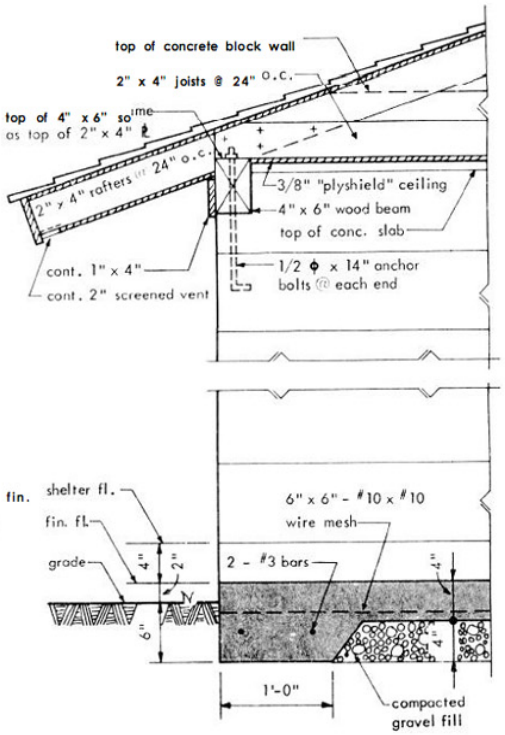
In areas subject to hurricanes, tornadoes, or earthquakes, walls shall be reinforced with #4 bars at 16" o.c. vertically. Place bars in block cells and then fill with grout. Lap bars between wall and footing dowels, and between wall and roof slab.

The wood frame roof over the reinforced concrete ceiling probably would be blown off by extremely high winds such as caused by a blast wave or tornado. However, this roof is primarily intended for appearance; The concrete ceiling provides the protection.

Structural design data:
Steel = 20,000 psi
Concrete = 2,500 psi
Soil (minimum) = 1,500 psf



SECTION C-C



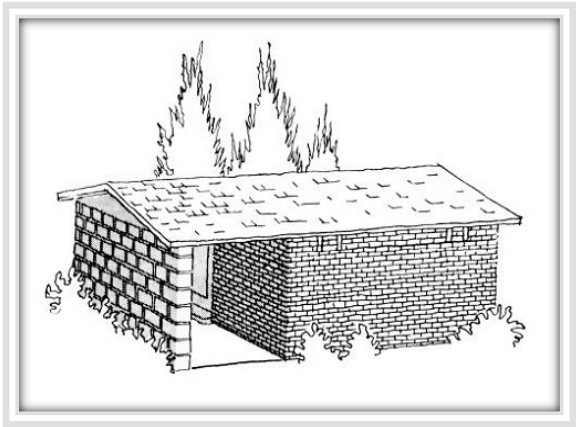
SECTION D-D

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FIRST ALTERNATE indicates windows in the workshop area. Solid blocks, equal to a thickness of 12 inches, should be available to fill th ese openings to provide adequate fallout protection. Window sizes should be kept small. When using the shelter for protection against high winds, do not place the concrete blocks in the doorway or windows.

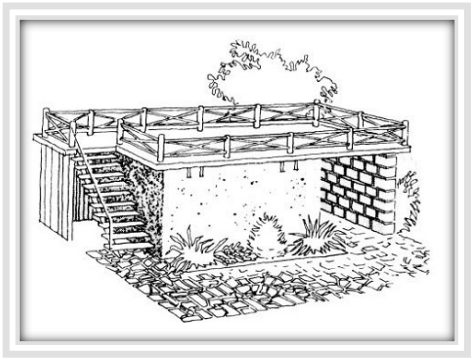
SECOND ALTERNATE shows the cement block faced with bricks. Use one course 4-inch brick and two courses of 8-inch cement block to obtain the required weight per unit area.





THIRD ALTERNATE is to attach the tool shed or workshop to the house, with a covered area between. In this case, the facing materials should match the house.

FOURTH ALTERNATE is to install built-up roofing of asphalt or tar, or other wearing surface, on top of the concrete deck.



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GUIDE TO CONTRACTS AND SPECIFICATIONS

It is generally advisable to have a written contract with your contractor as well as specifications to supplement the drawing. A widely used and convenient contract form for construction of this size is AIA Document A 107, “Short Form For Small Construction Contract Stipulated Sum,” which is available from the American Institute of Architects, 1785 Mass. Ave., Washington, D.C. 20036. It would be impractical to write a specification to suit every local condition; however, the following summary of generally accepted construction materials and practices is a useful guide:

CONCRETE

For details of concrete construction, follow “Building Code Requirements for Reinforced Concrete (AC I-3 18-71).” This publication can be obtained from the American Concrete Institute, Detroit, Michigan 48219.

DAMPPROOFING

Damp proofing the bottom slab is necessary to make the room more comfortable in most areas. Any contractor will be accustomed to compacting gravel and applying a polyethylene vapor barrier course. In areas that regularly experience high humidity, the outside walls of the block or concrete should be treated with a colorless type of protective coating material which is readily available at building supply stores. In areas of very low humidity, damp proofing might be omitted.

VENTILATION

Ventilation is obtained by natural convection. Air will enter the doorway and be exhausted through the holes at the ceiling. If a roof exhaust ventilation system is desired, the following manufacturer makes units that will meet the requirements:

Penn Ventilator Co.*/
Red Lion and Gantry Rd.
Philadelphia, Pennsylvania 19115

*/The listing of a specific manufacturer of equipment does not denote a preference for his products.

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OPTIONS

To accommodate additional persons, increase the shelter length 2’ -6” for each two shelter spaces. Do not increase the 8’ -0” width.

Lighting and receptacles may be installed with electric service obtained from a separate residence circuit. A branch circuit breaker should be installed inside the shelter.

MATERIALS LIST	Quantity
Concrete: footings floor cei l ing	 4.5 cu. yd. 2.3 cu. yd. 3.4 cu. yd.
Total	**10.2 cu. yd.**

MATERIALS LIST	Quantity
Steel Reinforcing: footings (3# deformed bars) ceiling (3# deformed bars) walls (4# deformed bars for hurricane, tornado or earthquake resistance	 198 lin. ft. 257 lin. ft. approx. 300 lin. ft.
Total	**755 lin. ft.**

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MATERIALS LIST	Quantity
Masonry:	
8” X 8” X 16” hollow concrete blocks	800
12” X 8” X 16” hollow concrete blocks	430
8” X 8” X 16” solid concrete blocks	75
sand (to fill cores)	12-1/2 yd.
Mortar:	
sand	1-1/2 yd.
portland cement	9 bags
lime	2 bags
Lumber: (“construction”grade)	
2” X 4” X 8’-0” roof rafters	32 pcs.
1 ” X 6” ridge	26 lin. ft.
2” X 4” X 12’-0” ceiling joists	5 pcs.
4” X 6” X 8’-0” beam	1 pc.
2” X 4” bearing plate	36 lin. ft.
4’-0” X 8’-0” X 3/8” “plyscord” sheathing	13 sheets
4’-0” X 8’-0” X 3/8” “plyshield” soffit & ceiling	6 sheets
1” x 4” x 3/4”	48lin. ft.
1” X 6” X 3/4”	84 lin. ft.
3/4” - ¼	24 lin. ft.
2’-8” X 6’-6” X 1 3/8” solid core wood door	1
2’-8” X 6’-6” X 5 1/2” wood iamb	1
Miscellaneous:	
15# roofing felt 2	4 1/2 squares
1O# asphalt shingles	4 1/2 squares
1/2” X 8” anchor bolts	12
1/2” X 14” anchor bolts	2
copper screen	20 sq. ft
6” X 6”-#1O X #10 wire mesh	200 sq. ft
polyethylene vapor barrier (4 mil)	200 sq. ft
gravel fill	2 1/2 yds.
4” butts w/screws	3
lockset	1

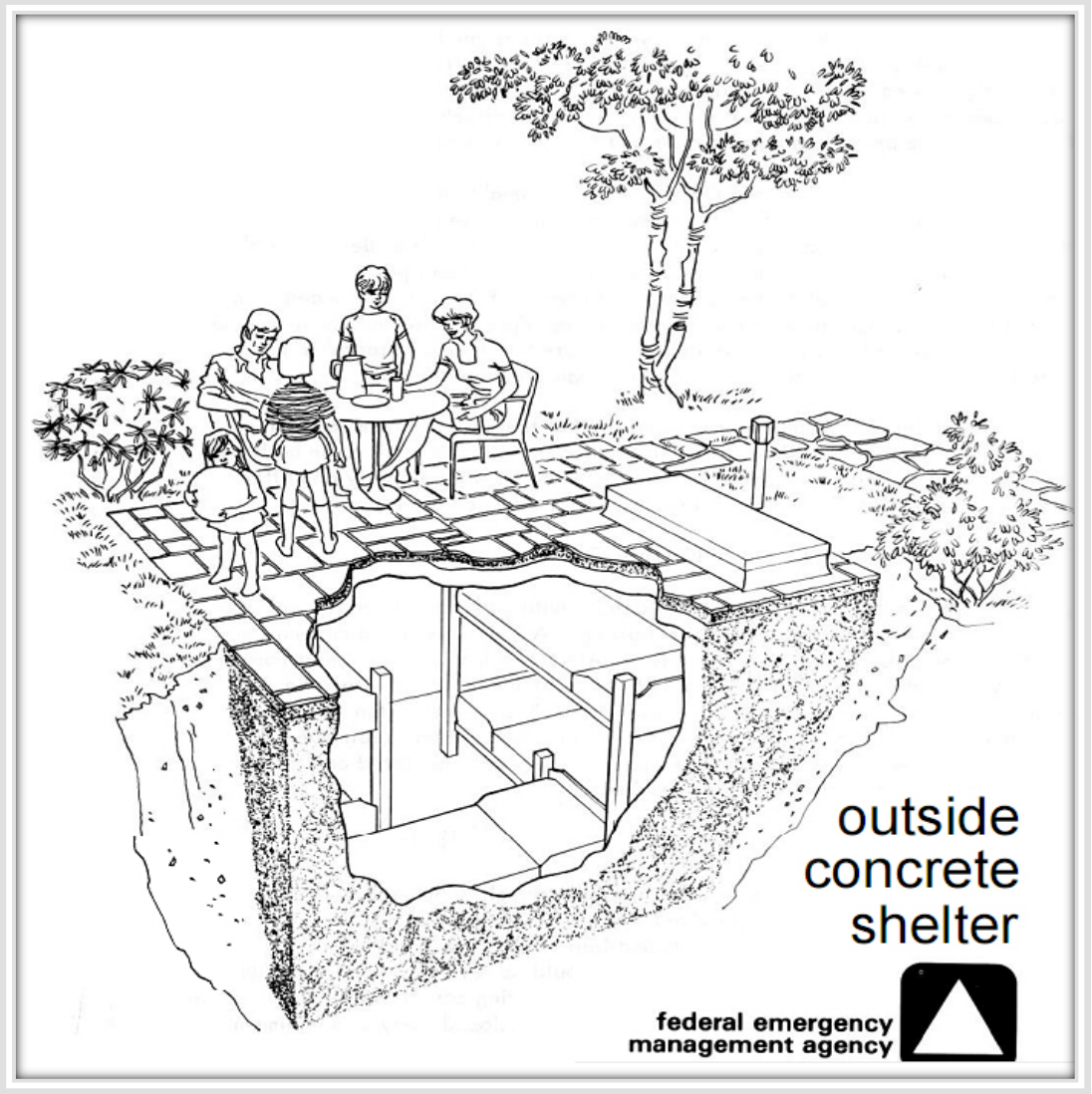
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16d common nai ls	25 lb.
8d common nails	20 lb.
6d common nails	20 lb.
8d casing nails	5 lb.
exterior paint, primer	5 gal.
exterior paint, 2 coats	6 gal.
interior paint, primer	4 gal.
interior paint, 2 coats	5 gal.

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HOME SHELTER



Protection is provided in an outside concrete shelter. The roof of the shelter can be used as an attractive patio.

H-12-1
© June 1980
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GENERAL INFORMATION

This family fallout shelter, designed primarily for homes without basements, is a permanent home shelter to be placed in the yard. It is designed to have a protection factor of at least 40, which is the minimum standard of protection for public shelters throughout the United States. This assures that persons inside the shelter will be protected against radioactive fallout following a nuclear attack, and will also have some protection against blast and fire effect of nuclear explosions.[12]

Following are detail drawings of the shelter, which is capable of housing six adults. It can be built of poured reinforced concrete, precast concrete slabs, or a combination of concrete blocks and poured concrete. If it is built as detailed with the top near ground level, the roof slab can be used as an outdoor patio. The shelter is accessible by a hatch-door and wood stairway. Fresh air is provided by a hand-operated centrifugal blower and two ventilating pipes that extend above ground level. In areas where there is poor drainage or where the ground water table is close to the surface, the fourth modification on page 5 should be used.

Before starting to build the shelter, make certain that the plan conforms to the local building code. Obtain a building permit if required. If the shelter is to be built by a local contractor, engage a reliable firm that will do the work properly and offer protection from any liability or other claims arising from its construction.

GUIDE TO CONTRACTS AND SPECIFICATIONS

It is generally advisable to have a written contract with your contractor, as well as technical specifications to supplement the drawing. A widely used and convenient contract form for construction of this size is the AIA Document A 107, “Short Form For Small Construction Contract -Stipulated Sum, “which is available from the American Institute of Architects, 1785 Massachusetts Ave., Washington, D. C. 20036.

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[12] This shelter will withstand overpressures of up to 5psi, and provides excellent protection from tornadoes.

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It would be impractical to write a technical specification to suit every local condition; however, the following summary of generally accepted construction materials and practices should be a useful guide.

CONCRETE

For details of concrete construction, the “Building Code Requirements for Reinforced Concrete/ (ACI 318 -71)” should be followed. This publication can be obtained from the American Concrete Institute, Detroit, Michigan 48219.

WATERPROOFING

Waterproofing specifications may be obtained from the nearest FHA (Federal Housing Administration) office, or those of a reputable manufacturer of waterproofing materials may be used.

VENTILATION

The ventilation piping for the shelter should be installed in accordance with the practices outlined in the “National Plumbing Code (ASA A40.8 -Latest Edition). " This publication may be secured from the American Society of Mechanical Engineers, New York, N.Y. 10018. All pipe and fittings shall be galvanized. Suitable ventilating blowers and roof ventilators are available from many sources of supply. Fabrication details and consequently the installation requirements will differ for equipment furnished by the various manufacturers. Positive-displacement blowers having both electric motor and geared hand-crank drives have been manufactured by:

Centaur Forge, Ltd.
P. O. Box 239
117 N. Spring St.
Burlington, Wisconsin 53105

B&B Sales
P. O. Box 86
So. Decatur Street
Marietta, Pa 17547

TEMET USA, Inc.
9417 Brian Jac Lane
Great Falls, VA 22066

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Ventilator Co. Red Lion and Gantry Rd. Philadelphia, PA 19115

Penn Ventilator Co.
Red Lion and Gantry Rd.
Philadelphia, PA 19115

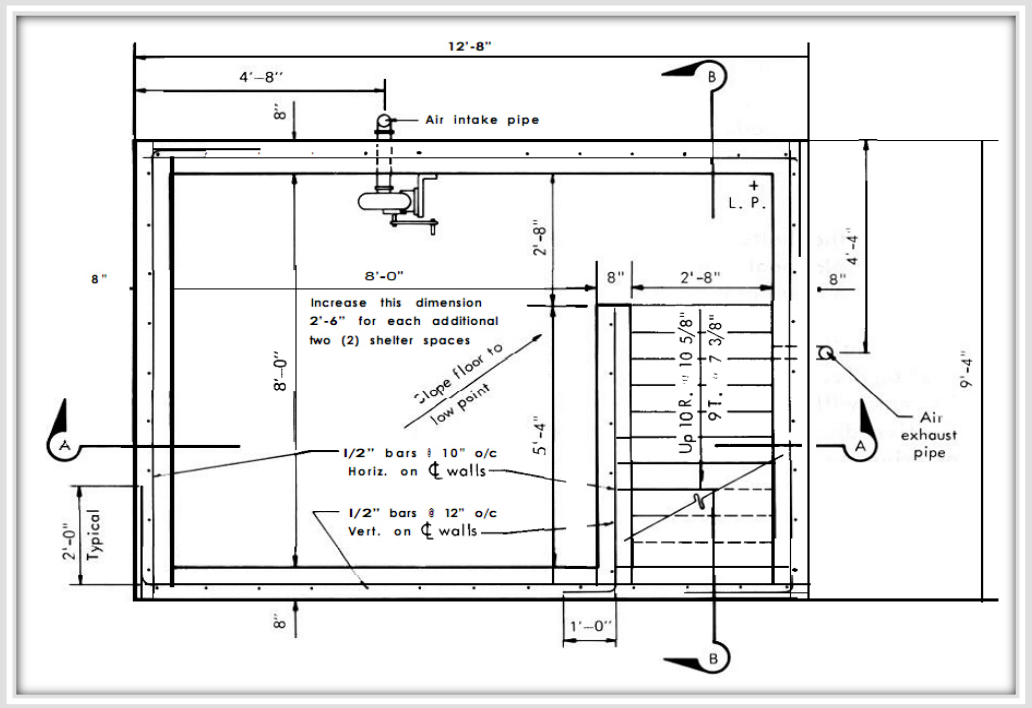
The names of specific manufacturers of equipment are given only as examples, and do not denote a preference for their products.

OPTIONS

To accommodate additional persons, increase the shelter length 2'-6" for each two (2) shelter spaces. Do not increase the 9'-4" width.

Electrical service for lighting and outlets may be installed in the shelter from a separate residence circuit. A branch circuit breaker should be installed inside the shelter. Additional lighting and outlets may be provided from this circuit'for the patio above.

An electric motor and pulley may be installed to operate the centrifugal hand-crank blower by virtue of the electrical service option.



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NOTES

Membrane shall be protected from backfill damage and when completing other stages of construction.

Place flagstone or bricks on a sand bed when using the roof slab as a patio.

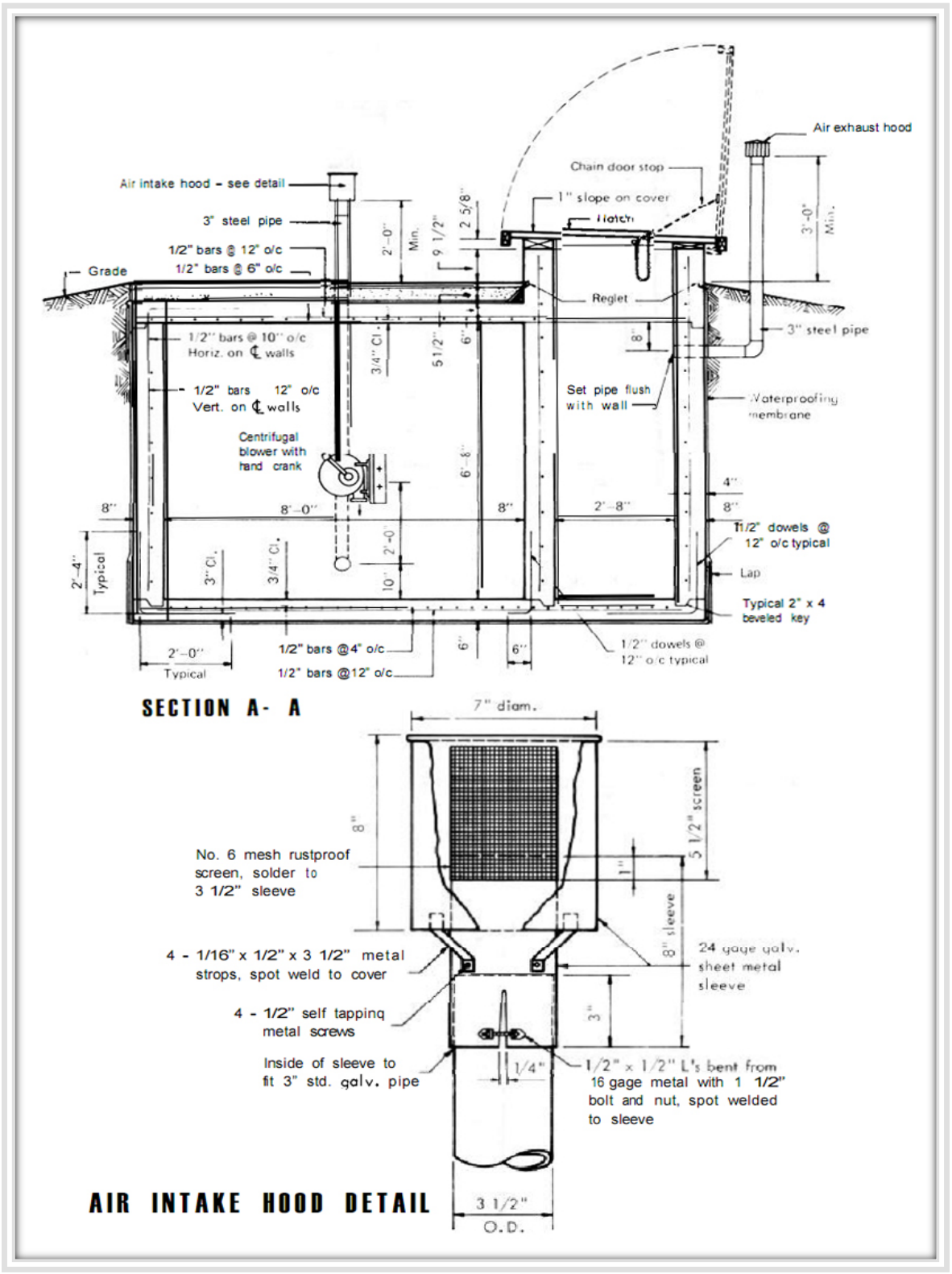
There are a number of commercially produced metal roof hatches that will adequately serve as a shelter door. However, as long as the door is weatherproof and durable, a job-made, galvanized sheet metal covered wood door is suitable.

Bevel all exposed corners of concrete 3/4” at 45º

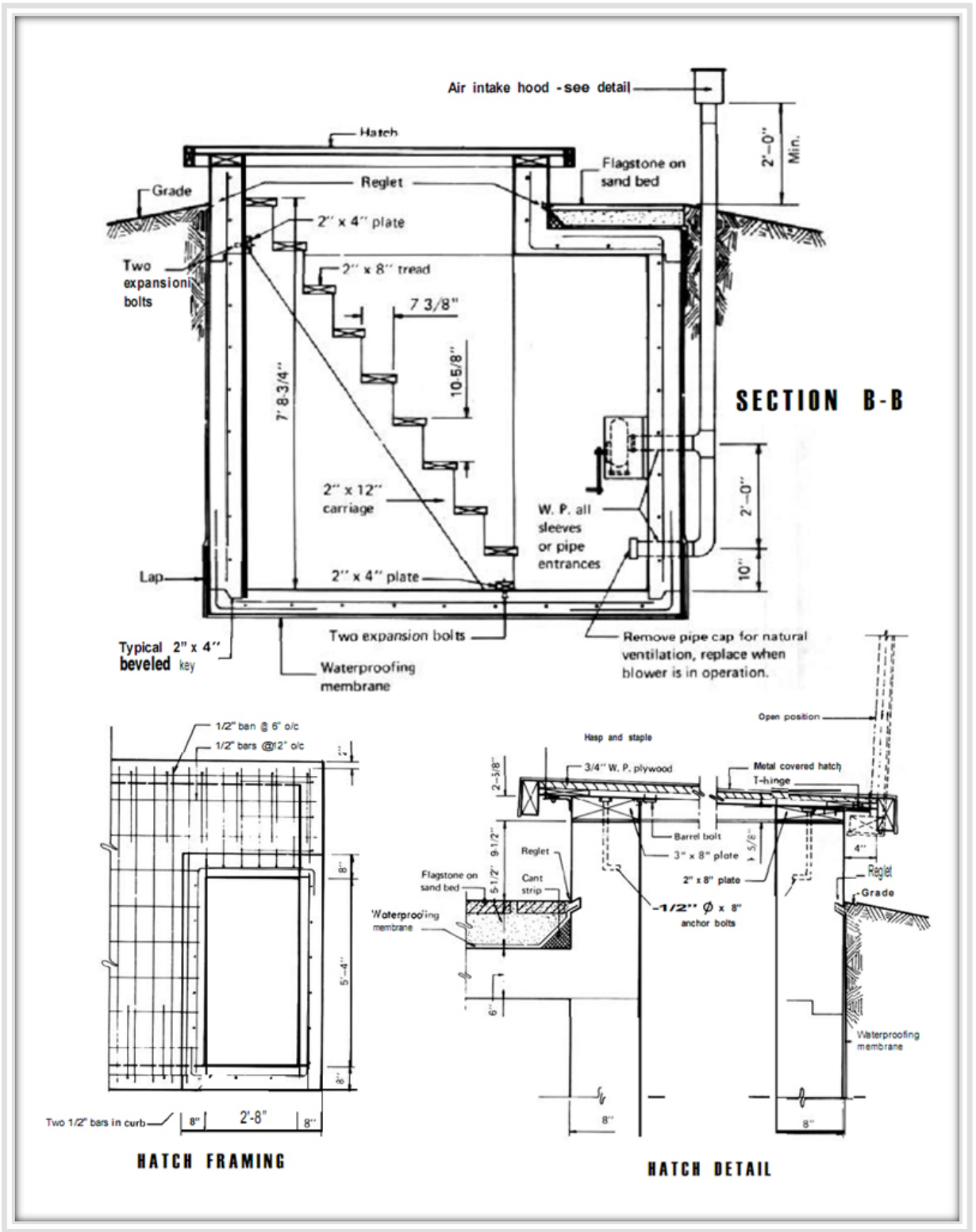
Structural design data:

Steel = 20,000 psi
Concrete = 2,500 psi
Soil (minimum) = 600 psf, to withstand
downward pressure 4

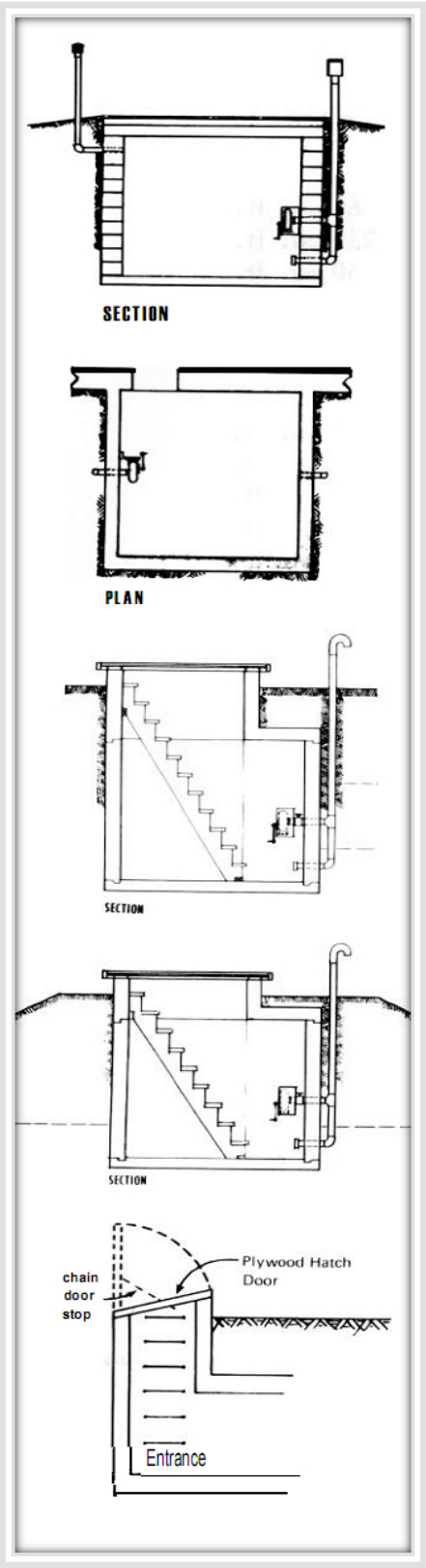
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MODIFICATIONS

This first modification utilizes 12-inch concrete masonry units for walls instead of reinforced concrete. The floor, roof and entranceway are the same as in the basic shelter, and the amount of protection provided is essentially the same.

If a basement is available, the shelter may either be separate from it, or attached. In this modification, an attached shelter is entered through the basement of the house, thereby permitting dual use of the shelter space. Other advantages of this modification include flexibility of shape and design to conform to the house design and the use of the same kind of building materials as used in the construction of the house.

If the topography permits, the shelter can be built into a hillside or embankment. This modification increases the protection factor by the addition of an earth mound over the shelter. A maximum of 3 feet of earth cover is recommended.

The principal advantage of this shelter modification is that it can be erected with a minimum of excavation in locations where there is poor drainage or where the ground water table is close to the surface. However, the exposure of the shelter above ground requires the addition of earth mounding around all sides.

This shelter modification permits the design and construction of a shelter with a fairly small hatch entry. The iron rungs placed in the concrete wall will also maximize the useable shelter area.

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MATERIALS LIST	Quantity
Concrete:*	
floor	60 cu. ft.
walls	235 cu. ft.
roof	50 cu. ft.
Total	**13 cu. yds.**

MATERIALS LIST	Quantity
Steel Reinforcing:	
floor	580 lin. ft.
walls	945 lin. ft.
roof	260 lin. ft.
Total	**1,785 lin. ft.**

MATERIALS LIST	Quantity
Miscellaneous:	
tie wire -6” coils	12
hand blower w/mounting bracket	1
3” galv. steel pipe	16 lin. ft.
3” galv. ells	2
3” galv. tee	1
3” galv. cap	1
intake hood, w/screen	1

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exhaust hood, w/screen	1
wood carriages, 2” x 12” x 10’	2
wood treads, 2” x 8” x 2’-8”	9
wood plates, 2” x 4” x 2’-8”	2
hatch door, metal covered	1
wood plate, 2” x 8” x 7’	1
wood plate, 3” x 8” x 14’ 1	1
T-hinges, 8” x E. H., galv.	3
hasp and staple, galv.	1
chain door stop, galv.	1
anchor bolts, 1/2x8"	8
expansion shields and bolts, 3/8” x 4"	4
waterproofing membrane	715 sq. ft.
flagstone	100 sq. ft.
sand	1.5 cu. yds.
cant strip	12 sq. ft.

***Form work not included.**

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PROTECTION IN THE NUCLEAR AGE

THE FEDERAL CIVIL DEFENSE ACT OF 1950, AS AMENDED
Public Law 920-81st Congress
(50 usc App. 2251-2297)

It is the policy and intent of Congress to provide a system of civil defense for the protection of life and property in the United States.... The term “civil defense” means all those activities and measures designed to minimize the effects upon the civilian population caused by an attack upon the United States. The Administrator is authorized, in order to carry out the above-mentioned purposes, to ...publicly disseminate appropriate civil defense Information by all appropriate means.

Federal Emergency Management Agency
Washington, D.C. 20472

H-20
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US Government Printing Office

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FOREWORD

The primary goal of the Federal Emergency Management Agency (FEMA) is to protect lives and reduce property loss from disasters and emergencies. To accomplish this, FEMA works with state and local governments to help them deliver better, more effective emergency management services across the whole spectrum of hazards—both natural and man-made.

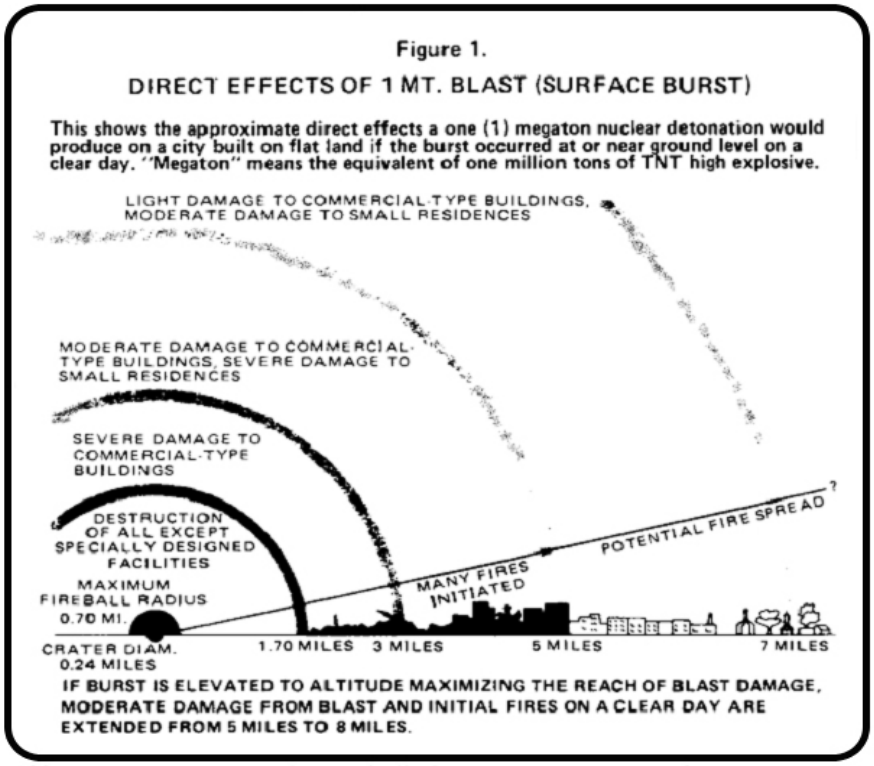
Regardless of the type, size, or severity of an emergency, certain basic capabilities are needed for an effective response: evacuation, shelter, communications, direction and control, continuity of government, resource management, law and order, and food and medical supplies. FEMA developed its Integrated Emergency Management System to focus efforts on building these and other generic capabilities needed to cope with a wide range of hazards.

This publication provides basic preparedness guidance combined with specific measures useful in national security emergencies.

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PART 1
THE EFFECTS OF NUCLEAR WEAPONS

Understanding the major effects of a nuclear detonation can help people better prepare themselves if an attack should occur. When a nuclear weapon is detonated, the main effects produced are intense light (flash), heat, blast, and radiation. The strength of these effects depends on the size and type of the weapon; the weather conditions (sunny or rainy, windy or still); the terrain (flat ground or hilly); and the height of the explosion (high in the air or near the ground). In addition, explosions that are on or close to the ground create large quantities of dangerous radioactive fallout particles. Most of these fall to earth during the first 24 hours. Figure 1 illustrates the damage that a one-megaton weapon* would cause if exploded on the ground in a populated area.



*Most weapons currently stockpiled are one megaton or less.

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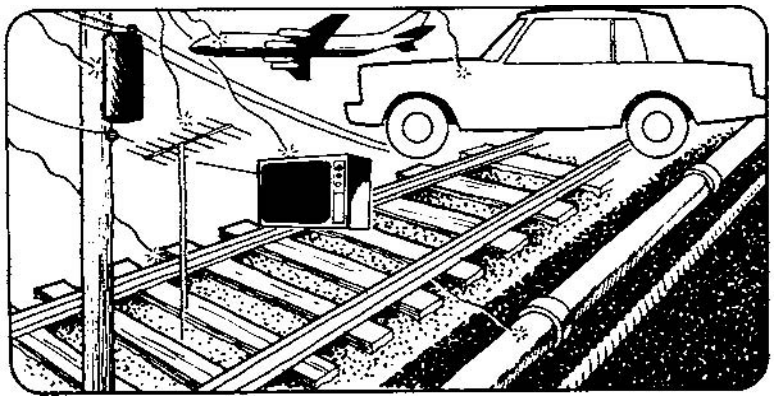
What Would Happen to People

In a nuclear attack, most people within a few miles of an exploding weapon would be killed or seriously injured by the blast, heat, or initial radiation. People in the lighter damage areas—as indicated in Figure 1—would be endangered both by blast and heat effects. However, millions of people are located away from potential targets. For them, as well as for survivors in the lighter damage areas, radioactive fallout would be the main danger. What would happen to people in nationwide attack, therefore, would depend primarily on their proximity to a nuclear explosion.

What is Electromagnetic Pulse?

An additional effect that can be created by a nuclear detonation is called electromagnetic pulse, or EMP. A nuclear weapon exploding just above the earth's atmosphere could damage electrical and electronic equipment for thousands of miles. (EMP has no direct effect on living things.)

EMP is electrical in nature and is roughly similar to the effects of a nearby lightning stroke on electrical or electronic equipment. However, EMP is stronger, faster, and briefer than lightning. EMP charges are collected by typical conductors of electricity, like cables, antennas, power lines, or buried pipes, etc. Basically, anything electronic that is connected to its power source (except batteries) or to an antenna (except one 30 inches or less) at the time of a high altitude nuclear detonation could be affected. The damage could range from minor interruption of function to actual burnout of components.



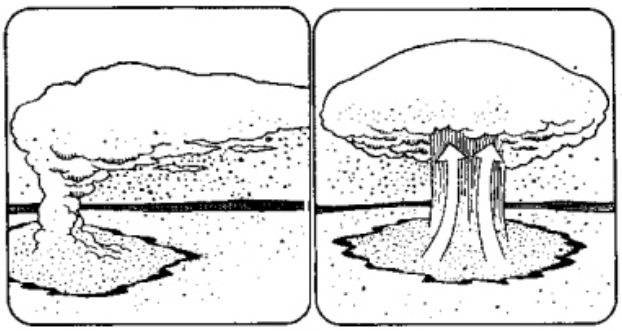
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Equipment with solid state devices, such as televisions, stereos, and computers, can be protected from EMP by disconnecting them from power lines, telephone lines, or antennas if nuclear attack seems likely. Battery-operated portable radios are not affected by EMP, nor are car radios if the antenna is down. But some cars with electronic ignitions might be disabled by EMP.

What is Fallout?

When a nuclear weapon explodes on or near the ground, great quantities of pulverized earth and other debris are sucked up into the nuclear cloud. The radioactive gases created by the explosion condense on and into this debris, producing radioactive particles known as fallout.

There is no way of predicting what areas would be affected by fallout or how soon the particles would fall back to earth at a particular location. The amount of fallout would depend on the number and size of weapons and whether they explode near the ground or in the air.



The distribution of fallout would be determined by wind currents and other weather conditions. Wind currents across the U.S. move generally from west to east, but actual wind patterns differ unpredictably from day to day. This makes it impossible to predict where fallout would be deposited from a particular attack.

An area could be affected not only by fallout from a nearby exploding weapon, but also by fallout from a weapon exploded many miles away. Areas close to a nuclear explosion might receive fallout within 15-30minutes. It might take 5-10 hours or more for the particles to drift down on a community 100 to 200 miles away. No area in the U.S. could be sure of not getting fallout, and it is probable that some fallout particles would be deposited on most of the country.

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Because fallout is actually dirt and other debris, the particles range in size. The largest particles are granular, like grains of sand or salt; the smallest are fine and dust-like.

At the time of explosion, all fallout particles are highly radioactive. The larger, heavier particles fall within 24 hours, and they are still very dangerous when they reach the ground. The smaller the particle, the longer it takes to fall. The smallest, dust-like particles may not fall back to earth for perhaps months or years, having lost much of their radioactivity while high in the atmosphere.(The rate at which fallout radioactivity decays is described in Figure 2.)

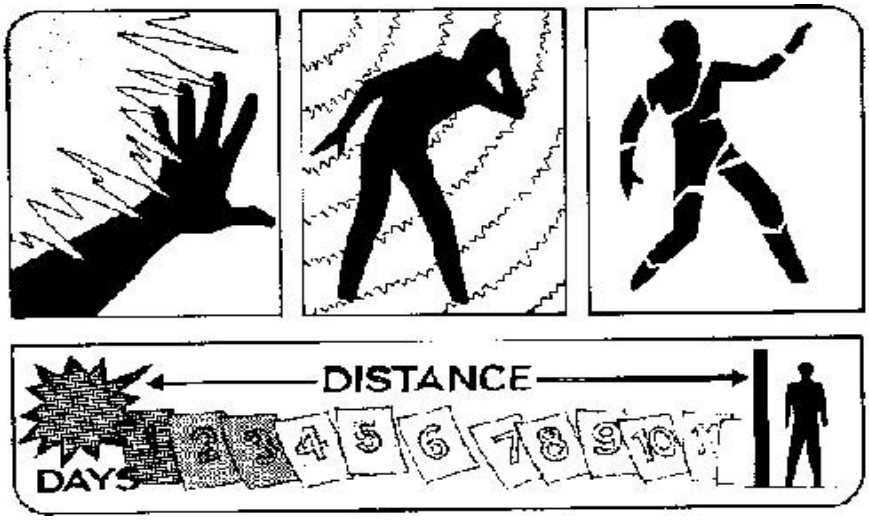
Fallout radioactivity can be detected only by special instruments which are already contained in the inventories of many state and local emergency services offices.

Protection from Fallout

For people who are not in areas threatened by blast and fire, but who need protection against fallout, there are three major factors to consider: distance, mass, and time.

The more DISTANCE between you and the fallout particles, the less radiation you will receive. In addition, you need a MASS of heavy, dense materials between you and the fallout particles. Materials like concrete, bricks, and earth absorb many of the gamma rays. Over TIME, the radioactivity in fallout loses its strength. Fallout radiation “decay” occurs relatively rapidly and is explained in Figure 2.

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The decay of fallout radiation is expressed by the “seven-ten” rule. Simply stated, this means that for every sevenfold increase in time after detonation, there is a tenfold decrease in the radiation rate. For example, if the radiation intensity one hour after detonation is1,000 Roentgens (R)* per hour, after seven hours it will have decreased to one-tenth as much—or 100 R per hour. After the next sevenfold passage time (49 hours or approximately two days), the radiation level will have decreased to one-hundredth of the original rate, or be about 10 R per hour. The box below illustrates how, after about a two-week period, the level of radiation would be at one-thousandth of the level at one hour after detonation, or 1 R per hour.

Radiation exposure is measured in Roentgens (R).

Hours after Detonation	Rate of Decrease	Level of Radiation
1	--	1,000 R/hr
7	1/10	100 R/hr
49	1/100	10 R/hr
343	1/1000	1 R/hr

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One way to protect you from fallout is by staying in a fallout shelter. As shown by Figure 2, the first few days after an attack would be the most dangerous time. How long people should stay in shelter would depend on how much fallout was deposited in their area. In areas receiving fallout, shelter stay times could range from a few days to as much as two weeks, or somewhat longer in limited areas.

Radiation Sickness

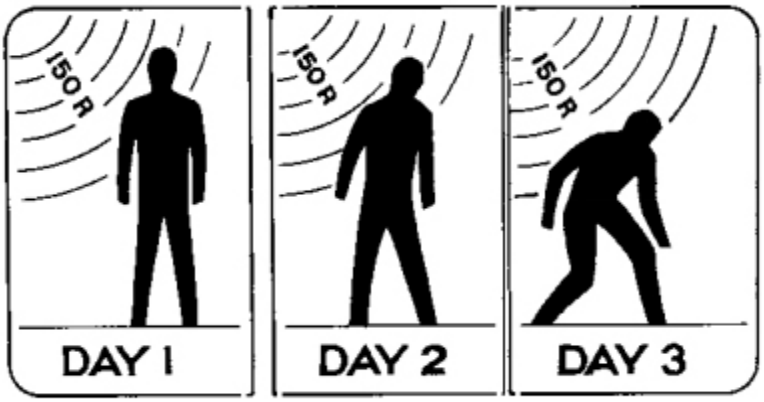
The invisible, radioactive rays given off by fallout particles cause radiation sickness—that is, physical and chemical damage to body cells. A large dose of radiation can cause serious illness or death. A smaller dose (or the same large dose received over a longer period of time) allows the body to repair itself.

Broadly speaking, radiation has a cumulative effect, acting much like a chemical poison. Like chemicals, a large single dose can cause death or severe sickness, depending on its size and the individual's susceptibility. Usually the effects of a given dose of radiation are more severe in the very young, the elderly, and people not in good health. On the other hand, people can be subjected to small daily doses over extended periods of time without causing serious illness, although there may be delayed consequences. Also, like illness from poison, one person cannot "catch" radiation sickness from another; it's not contagious.

There are three kinds of radiation given off by fallout: alpha, beta, and gamma. Alpha radiation is stopped by the outer skin layers. Beta radiation is more penetrating and may cause burns if unprotected skin is exposed to fresh fallout particles for a few hours. But of the three, gamma poses the greatest threat to life and is the most difficult to protect against. Gamma radiation can penetrate the entire body—like a strong x-ray—and cause damage in organs, blood, and bones. If exposed to enough gamma radiation, too many cells can be damaged to allow the body to recover.

Following are estimated short-term effects on humans after brief (a period of a few days to a week) whole-body exposure to gamma radiation.

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50-200 R exposure. Less than half of the people exposed to this much radiation suffer nausea and vomiting within 24 hours. Later, some people may tire easily, but otherwise there are no further symptoms. Less than 5 percent (1 out of 20) need medical care. Any deaths occurring after this much radiation exposure are probably due to complications arising from other medical problems such as infections and diseases, injuries from blast, or burns.

200-450 R exposure. More than half of the people exposed to 200-450R in a brief period suffer nausea and vomiting and are ill for a few days. This illness is followed by a period of one to three weeks when there are few if any symptoms—a latent period. Then more than half experience loss of hair, and a moderately severe illness develops, often characterized by a sore throat. Radiation damage to the blood-forming organs results in a loss of white blood cells, increasing the chance of illness from infections. Most of the people in this group need medical care, but more than half will survive without treatment.

450-600 R exposure. Most of the people exposed to 450-600 R suffer severe nausea and vomiting and are very ill for several days. The latent period is shortened to one or two weeks. The main episode of illness that follows is characterized by extensive bleeding from the mouth, throat, and skin, as well as loss of hair. Infections such as sore throat, pneumonia, and enteritis (inflammation of the small intestine) are common. People in this group need extensive medical care and hospitalization to survive. Fewer than half will survive in spite of the best care.

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600 to over 1,000 R exposure. All the people in this group begin to suffer severe nausea and vomiting. Without medication, this condition can continue for several days or until death. Death can occur in less than two weeks without the appearance of bleeding or loss of hair. It is unlikely, even with extensive medical care that many can survive.

Several thousand R exposures. Symptoms of rapidly progressing shock occur immediately after exposure. Death occurs in a few hours to a few days.

Symptoms of radiation sickness may not be noticed for several days. The early symptoms are lack of appetite, nausea, vomiting, fatigue, weakness, and headache. Later, the patient may have a sore mouth, loss of hair, bleeding gums, bleeding under the skin, and diarrhea. Not everyone who has radiation sickness shows all these symptoms, or shows them all at once. Even for people who survive early sickness, any exposure to fallout radiation could have effects that may not appear for months or years.

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PART 2
WARNING

An enemy attack on the United States probably would be preceded by a period of international tension or crisis. This crisis period would alert citizens to the possibility of attack and should be used for emergency preparations.

How you receive warning of an attack would depend on where you were. You might hear the warning given on radio or television, or from the outdoor warning system in your city or town. Many communities have outdoor warning systems that use sirens, whistles, horns, or other devices. Although they've been installed mainly to warn citizens of enemy attack, some local governments also use these systems to alert people to natural disasters and other peacetime emergencies.



The Standard Warning Signals

Two standard emergency signals have been adopted by most communities:

The ATTENTION or ALERT SIGNAL

is a 3-to 5-minute steady blast on sirens, whistles, horns, or other devices. In most places, this signal means the local government wants to broadcast important information. If you hear the attention or alert signal, turn on your radio or television and — stay tuned for news bulletins.



The ATTACK WARNING SIGNAL

will be sounded only in case of enemy attack. The signal itself is a 3- to 5¬minute wavering sound on sirens, or a series of short blasts on whistles,

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horns, or other devices, repeated as necessary. The ATTACK WARNING SIGNAL means that an actual attack against the United States has been detected and that immediate protective action is necessary.

If you hear the attack warning signal, go immediately to a public fallout shelter or to your home fallout shelter and stay there, unless instructed otherwise. If possible, keep a battery-powered radio with you, and listen for official information. Follow the instructions given.

Sirens are tested regularly, often monthly, at a specific date and time. The test is a 90-second blast or a 90-second rising and falling tone.

Set Up a "Warning Watch"

Not all communities in the U.S. have outdoor warning systems. Or you may live too far from the signal to hear it— especially while you're asleep.

If either of these cases applies to you, set up a "warning watch "during a period of international crisis. At least one person in your family should be listening to the radio or television at all times. If the United States is threatened by attack, most radio and television stations would be used to alert the public through the Emergency Broadcast System and carry official messages and instructions. Persons listening can alert other family members.

Set up your warning watch in shifts, taking turns with family members or neighbors. Alert any hearing-impaired people in your area to news updates.

Be Prepared Now

Find out now from your local civil defense office what warning signals are being used in your community, what they sound like, what they mean, and what actions you should take when you hear them. Check at least once a year for changes.

Also, identify fallout shelters in your area. Know which are closest to you and how to get to them. Have ready at least a two-week stock of water, food, and supplies to bring to shelter.

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If there is a Nuclear Flash



It's possible that your first warning of an enemy attack might be the flash of a nuclear explosion. Or there may be a flash after a warning has been given and you are on your way to shelter.

Because the flash or fireball can blind you (even though you are too far away for the blast effects to harm you immediately), don't look at the flash.

Take cover immediately, preferably below ground level.

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PART 3
POPULATION PROTECTION

Be INFORMED and Be PREPARED

These are the most important ways you can improve your chances for survival. First, read and understand available survival information. This publication contains survival information which can generally be used anywhere in the United States. Ask your local or state emergency management (civil defense) office for information unique to your locality.

Any attack on the United States probably would be preceded by a period of growing international tension and outbreaks of hostilities in other parts of the world.

Keep abreast of the news through the media. Listen for emergency information being broadcast or watch for printed information—like newspaper supplements—for your area. And be sure you know the signals used in your community to indicate alert and attack.

EVACUATION and SHELTER are the two basic ways people can protect themselves from the effects of a nuclear attack.

EVACUATION

If an international crisis threatens to result in a nuclear attack on the United States, people living in likely target areas may be advised to evacuate. These are generally metropolitan areas of 50,000 or more population or places that have significant military, industrial, or economic importance. Designating a place as a “risk” area does not mean that it will be attacked; it does indicate a greater potential for attack.

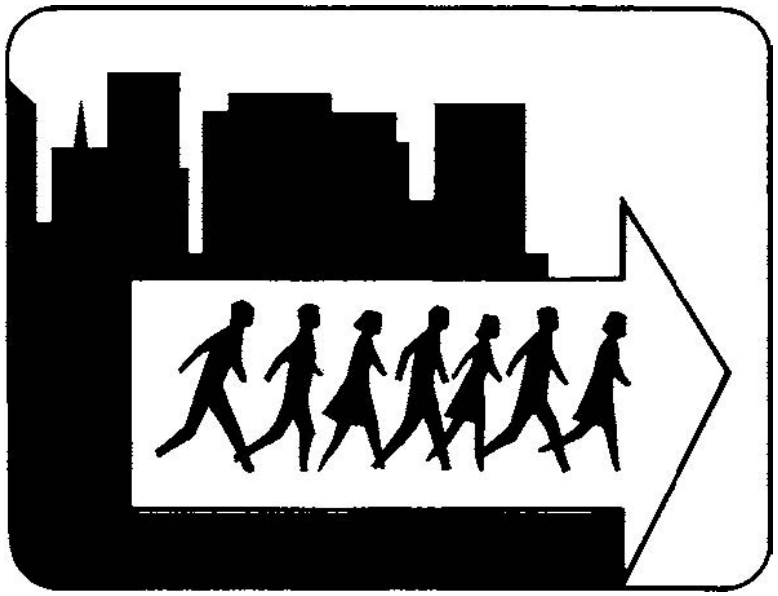
Evacuation planning has been in progress for several years in many parts of the country. These plans could be used not only under the threat of attack, but also for other emergencies like floods, hurricanes, or hazardous materials incidents.

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Local authorities are responsible for such planning because they are familiar with local factors affecting evacuation.

To find out about evacuation plans for your area, contact your local emergency management (civil defense) office.

In a period of growing international tension, you would have time to take a few preparedness measures which would make an evacuation easier:



- Assemble a two-week supply of food (canned foods and nonperishable items) and drinking water in closed containers.
- Gather an ample supply of special foods or medicines needed.
- Collect all important papers and package them, preferably in plastic wrappers, in a metal container (tool or fishing tackle box, etc.).
- Check your home for security. See that all locks are secure. Store valuables to be left behind in a safe place.
- Be sure to have enough gasoline in your car. If possible, take tools to help improvise fallout shelter.
- Go over instructions with your family so that you all understand what to do.

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The following is a suggested checklist of items you may want to take with you when evacuating, depending on how you are traveling and whether you plan to stay in a public or private shelter.

Food and Utensils

- Water
- Food (Take all the food you can carry, particularly canned or dried)
- Food requiring little preparation.)
- Special foods (for diabetics, babies)
- Thermos jug or plastic bottles
- Bottle and can opener
- Eating utensils
- Plastic or paper plates and cups
- Plastic and paper bags

Personal Safety, Sanitation, and Medical Supplies

- Battery-operated (transistor) radios, extra batteries
- Flashlight, with extra batteries
- Candles and matches
- Plastic drop cloth or sheeting
- Soap
- Shaving articles
- Sanitary napkins (or tampons)
- Detergent
- Towels and washcloths

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- Toilet paper
- Emergency toilet (bucket and plastic bags)
- Garbage can
- Newspapers
- First aid kit and manual
- Special medication (insulin, heart tablets, etc.)
- Toothbrush and toothpaste

Clothing and Bedding

- Work gloves
- Work clothes
- Extra underclothing
- Outerwear (depending on season)
- Rain garments
- Extra pair of shoes
- Extra socks or stockings
- Sleeping bags and or blankets

Tools for Constructing Fallout Protection

- Pick axe
- Shovel
- Saw
- Hammer
- Broom

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- Axe
- Crowbar
- Nails and screws
- Screwdriver
- Wrenches and pliers
- Roll of wire

Baby Supplies

- Diapers
- Bottles and nipples
- Milk or formula
- Powder, oil, etc.
- Clothing

If an evacuation is advised, follow your local authorities instructions. They will tell you where to go for greater safety.

SHELTER

There are two kinds of shelters—blast and fallout. Depending on its strength, a blast shelter offers some protection against blast pressure, initial radiation, heat, and fire. However, even a blast shelter would not withstand a direct hit. If you live in a likely target area, you should plan to evacuate to a safer place.

If you live in a small town or rural area away from large cities or major military or industrial centers, the chances are you re not going to be threatened by blast, but by radioactive fallout from an attack. In such a place, a fallout shelter can give you protection.

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A fallout shelter is any space that is surrounded by enough shielding material—which is any substance with enough weight and mass to absorb and deflect fallout's radiation— to protect those inside from the harmful radioactive particles outside. The thicker, heavier, or denser the shielding material is, the more protection it offers.

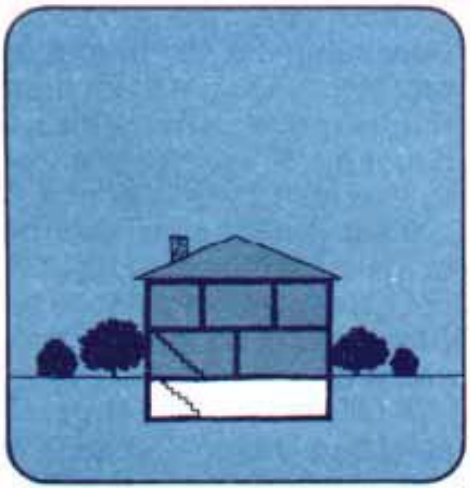


If you are advised to take shelter, you have two options: go to a nearby public shelter or take the best available shelter in your home.

Public Fallout Shelters

Existing public shelters are fallout shelters; they will not protect you against blast. They are located in larger public buildings and are marked with the standard yellow-and-black fallout shelter sign. Shelter can also be found in some subways, tunnels, basements, or the center, windowless areas of middle floors in high-rise buildings.

Find out now the locations of public fallout shelters in your community. If no designations have been made, learn the locations of potential shelters near your home, work, school, or any other place where you spend considerable time. This advice is for all family members. Children and the disabled or elderly especially should be given clear instructions on where to find a fallout shelter and on what other actions they should take in an attack situation.



Home Fallout Shelters

In many places— especially suburban and rural areas—there are few public shelters. If there is no public shelter nearby, you may want to build a home fallout shelter.

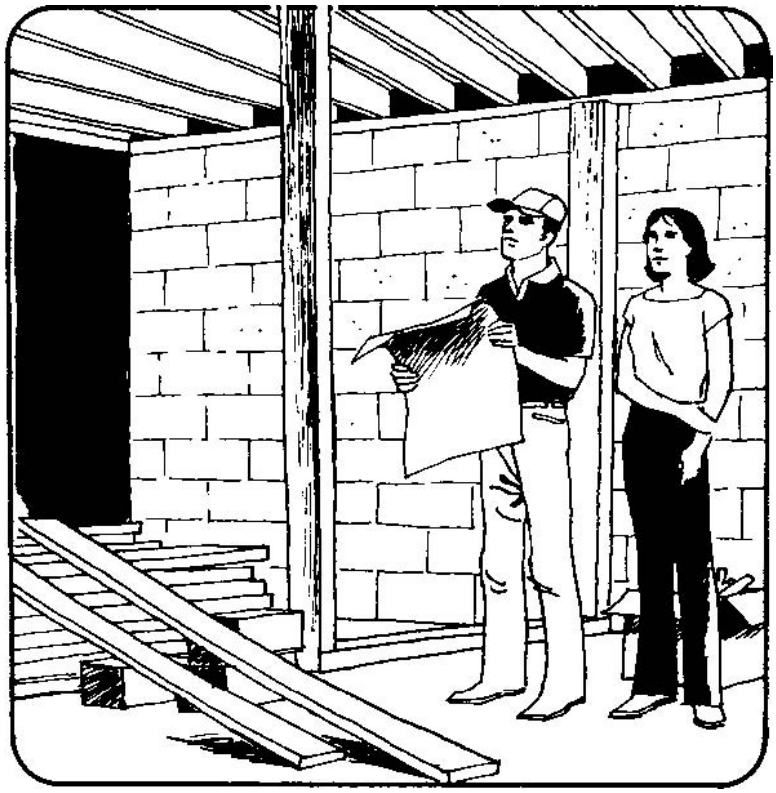
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A basement, or any underground area, is the best place to build a fallout shelter. Basements in some homes are usable as family fallout shelters without major changes, especially if the house has two or more stories and its basement is below ground. If your home basement—or one corner of it—is below ground, build your fallout shelter there.

However, most basements need some improvement in order to provide enough protection against fallout. Many improvements can be made with moderate effort and at low cost.

You can build a permanent shelter in your basement that can be used for storage or other useful purposes in non-emergency periods. The shelter should be located in the corner of your basement that is most below ground level. The higher your basement is above ground level, the thicker the walls and roof of the shelter should be, since your regular basement walls and ceiling can offer only limited protection against fallout's radiation. If the ceiling of the shelter itself is higher than the outside ground level, you can increase your basement shelter's fallout protection by adding shielding material to the outside, exposed basement wall where the shelter is located. For example, an earth-filled planter can be built against the outside basement wall.

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Plans for home basement and outdoor permanent shelters (both fallout and blast) are listed in Appendix A.

If an attack is imminent and you have no permanent shelter—and time does not permit traveling to one—you can still improvise one.

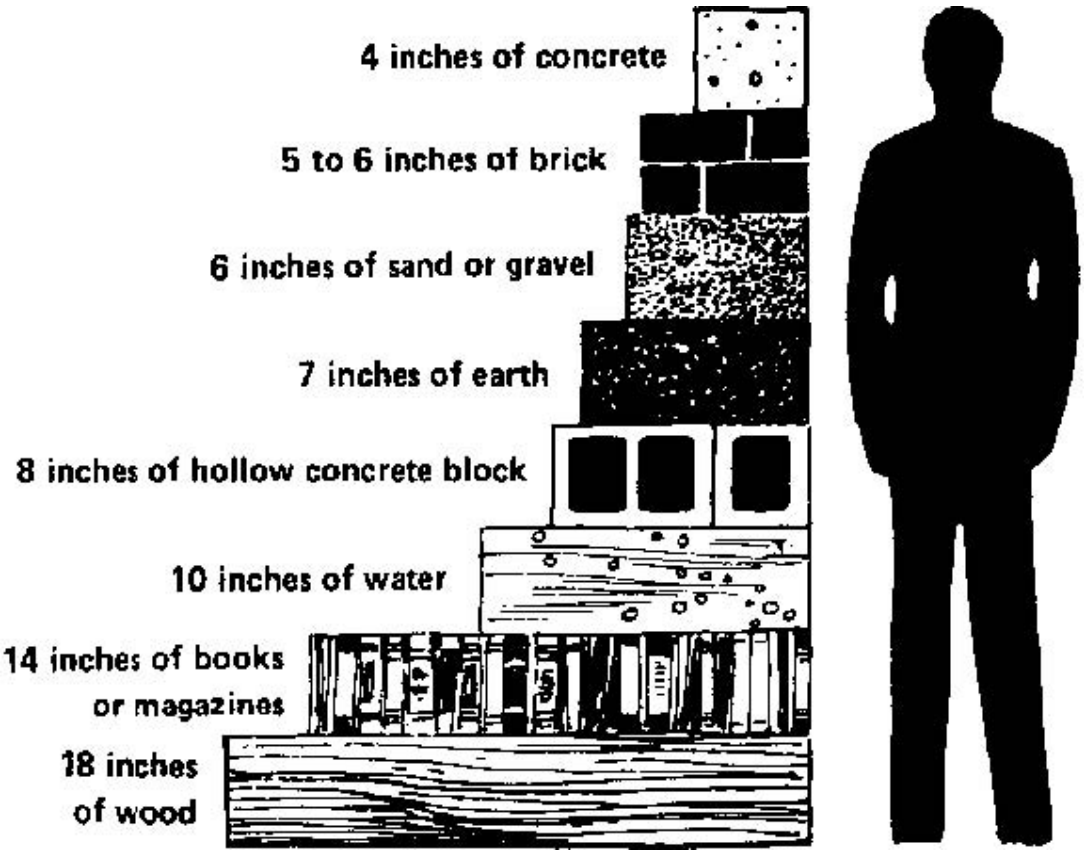
Shielding Material

Whether you are building a permanent shelter or improvising one, the more shielding material you use, the more protection you will have against fallout radiation. Concrete, bricks, earth, and sand are some of the materials that are dense or heavy enough to provide fallout protection. For comparative purposes, 4 inches of concrete gives the same shielding density as:

- 5 to 6 inches of bricks
- 6 inches of sand or gravel
- 7 inches of earth

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- 8 inches of hollow concrete blocks (6 inches, if filled with sand
- 10 inches of water
- 14 inches of books or magazines
- 18 inches of wood



Precise building instructions and supplies needed are contained in the plans for permanent shelters. For improvised shelter, you can use materials likely to be available around your home, like:

- House doors—especially heavy outside doors. (If you use hollow core doors, form a double layer.)
- Dressers and chests. (Fill drawers with sand or earth after they're in position, so they won't be too heavy to carry or collapse while being carried.)

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- Trunks, boxes, and cartons. (Fill them with sand or earth after they're positioned.)
- Filled bookcases.
- Books, magazines, and stacks of firewood or lumber.
- Large appliances, such as washers and dryers.
- Flagstones from outside walks and patios.

Types of Expedient Shelters

You can build one type of expedient shelter by setting up a large, sturdy table or workbench in the corner of your basement that is most below ground level. Place on it as much shielding as it will hold without collapsing. Then put as much shielding material around the table as possible, up as high as the table top.

Once everyone is inside the shelter, block the opening with additional shielding material. Listen to your radio for instruction son when you may be able to relocate to better shelter.

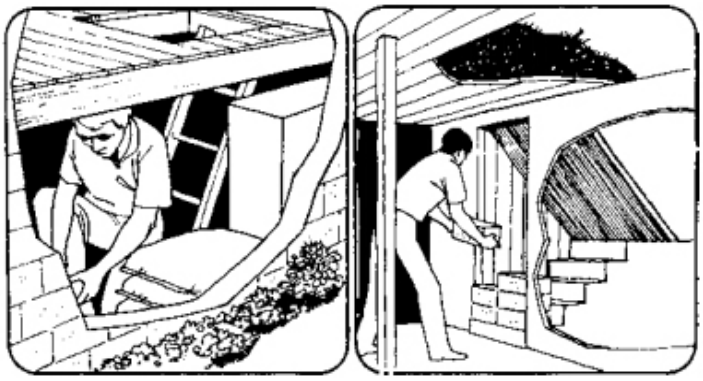


If you don't have a large table or workbench, or if you need more shelter space, use large appliances or furniture—like earth-filled dressers or chests—to form the "walls" of your shelter. For a "ceiling," use heavy, outside doors or reinforced hollow core doors. Pile as much shielding material on top of the doors as they will hold with reinforcing supports. Stack additional shielding material around the shelter "walls." When everyone is inside the shelter, block the opening with other shielding material.

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You can use a below-ground storm cellar as an improvised fallout shelter, but additional shielding material may be required for adequate protection.

If the existing roof of the storm cellar is made of wood or any other light material, reinforce it with additional shielding material for overhead protection. Shoring with lumber or timbers may be necessary to support the added shielding weight. You can get better protection by baffling the entrance from the outside or by blocking the entrance from the inside with 8-inch concrete blocks or an equivalent thickness of earth, sandbags, or bricks after everyone are inside the shelter. Raise the outside door of the cellar now and then to knock off any fallout particles that may have collected on it.



If your home has a crawl space between the first floor and the ground underneath and is set on foundation walls rather than on pillars, you may be able to improvise shelter protection for your family there.

Gain access to the crawl space through the floor or an outside foundation wall. (A trapdoor or other entry could be made now, before an emergency occurs.)

Select as your shelter's location the crawl space area that is under the center of the house, as far away from any outside foundation wall as possible.

Put shielding material— preferably bricks or blocks, or containers filled with sand or earth—around the area from the ground level up to the first floor, to form the 'walls" of the shelter. On the floor above, place additional shielding material to form the "roof" of your shelter. Shore the "roof" for extra support, if necessary.

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You may want to dig out your shelter area to make it deeper so you can stand erect or at least sit up in it.

If you have no basement, crawl space, or other underground shelter area, as a last resort you can improvise shelter outside. An expedient shelter can be “built” by excavating under a small portion of the house slab. Dig a trench alongside the house, preferably under an eave to help keep out rainwater. Once the bottom of the foundation wall is reached, dig out a space under the slab. This area can vary but should not extend back more than four feet from the outside edge of the foundation wall. Place support shoring under the slab, pile shielding material on top of the slab (inside the house) to improve overhead protection, and take refuge. A lean-to over the entrance, covered by shielding material and plastic sheeting, can help keep out rainwater and add to your protection.

If no better fallout protection is available, a boat with an enclosed cabin could be used. However, in addition to other emergency supplies, you would need a broom, bucket, or pump-and-hose to sweep off any fallout particles that might land on the boat.

The boat should be anchored or cruised slowly at least 200 feet offshore, where the water is at least five feet deep. This distance from shore would protect you from radioactive fallout particles that had fallen on the nearby land. A five-foot depth would absorb the radiation from particles falling into the water and settling on the bottom.

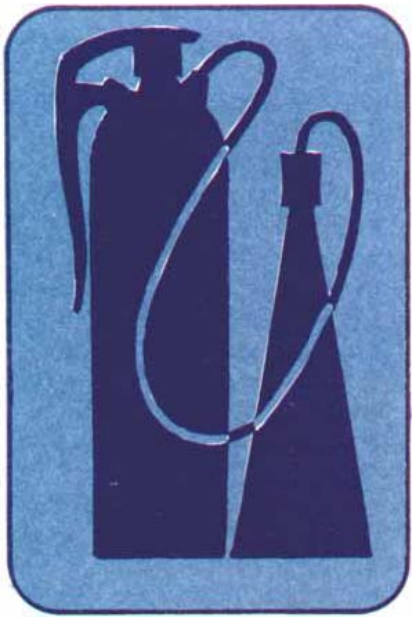
Stay in the boat as much as possible, going outside only to sweep or flush off any particles which have landed on the boat.

For more detailed expedient shelter plans, see Appendixes B-D.

Remember, any protection, although temporary, is better than none. Take cover wherever possible from the blast, fire, and initial radiation of a nuclear detonation. Listen for news reports on when it is safe to relocate to more permanent and protective shelter, and follow all instructions.

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Fire Hazards



If you take refuge in a fallout shelter because an attack has occurred, take a few minutes to check your home (or building where you are located) for fire. Remember, you have a minimum of 15¬30 minutes before fallout begins, so take the time to put out small fires. Stamp out any fires started in curtains or drapes and throw smoldering furniture out the door or window to help prevent a larger fire. When all ignitions are out, return to the shelter. You can reduce the potential for intense heat rays from a nuclear explosion starting fires in your home by closing doors, windows, and blinds.

There are three basic ways to put out a fire:

- Take away its fuel.
- Take away its air (smother it).
- Cool it with water or fire-extinguishing chemicals.

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PART 4
SHELTER LIVING

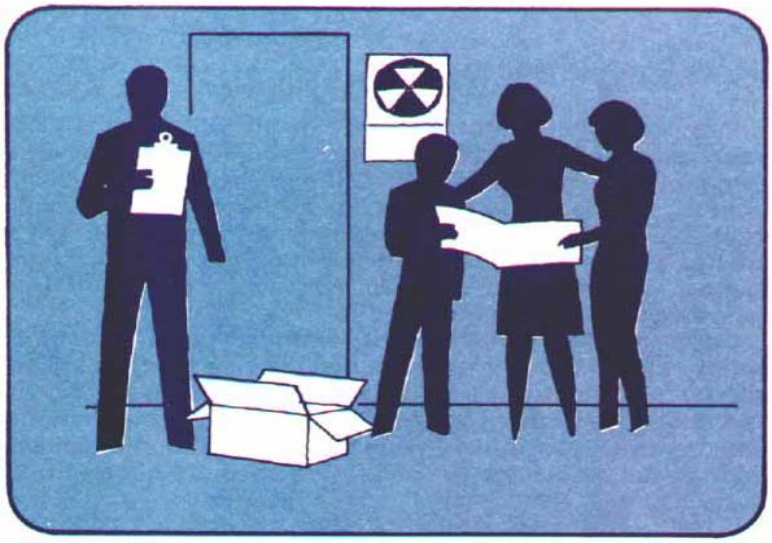
People gathered in public and private fallout shelters after a nuclear attack should stay there until they are advised by authorities that it is safe to leave. This may be from a few days to as much as a week or two.

During the shelter period, they would need certain supplies and equipment to survive and to effectively deal with emergency situations that might arise in their shelters.

This section tells you what supplies and equipment to take if you go to a public fallout shelter and what items to keep on hand if you plan to use a home fallout shelter.

Public Shelter Management

Many public fallout shelters are located in large commercial buildings. Depending on what the building contains, there may be some food, water, and living supplies which people could take advantage of. If you are evacuating from one area to another to stay in a public shelter, take as much nonperishable food and drinking water as you can, any special foods or medications needed, a blanket for each family member, and a portable radio with extra batteries.



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Water, Food, and Sanitation in a Public Shelter

At all times and under all conditions, human beings must have sufficient water, adequate food, and proper sanitation in order to stay alive and healthy. With people living in a shelter—even for a week or two—water and food may be scarce, and it may be difficult to maintain normal sanitary conditions. Water and food supplies have to be 'managed"— that is, kept clean and used carefully by each person in the shelter. Sanitation also has to be managed and controlled, perhaps by setting up emergency toilets and rules to ensure that they are used properly.

Many people have been trained as shelter managers, and in the event of attack, efforts would be made by local authorities to have trained shelter managers and radiation monitors in public fallout shelters. These people have been taught how to use special instruments to measure radiation and know about sanitation, ventilation, and making the best use of available water and food supplies.

Home Shelter Management

In a home shelter, you and your family will be largely on your own. You'll have to take care of yourselves, solve your own problems, make your own living arrangements, subsist on the supplies you stocked, and find out for yourself (probably by listening to the radio) when it's safe to leave shelter. In this situation, your most important tasks are to manage water and food supplies and maintain sanitation. The following guidance is intended to help you do this.

Gather the items your family will need for an extended shelter stay. All of these items need not be stocked in the shelter but can be stored elsewhere in the house as long as you can move them quickly to the shelter area in a time of emergency. A few items—water, food, sanitation supplies, and special medicines or foods—are absolute necessities.

In addition, there are other important items that may be needed. Here is a list of them, both essential and desirable.

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WATER. Water is even more important than food. Each person will need at least one quart of water per day; some may need more. Store it in plastic containers or in bottles or cans with tight stoppers. Part of your water supply might be "trapped" in the pipes or hot water tank of your home plumbing system, and part of it might be in the form of bottled or canned beverages, fruit or vegetable juices, or milk. A water-purifying agent (either water-purifying tablets, 2 percent tincture of iodine, or liquid household chlorine bleach with hypo-chlorite as its only active ingredient) should also be stored in case you need to purify any cloudy or "suspicious" water that may contain bacteria.(Also see page 28.)



FOOD. Keep enough food on hand to feed all shelter occupants for an extended period including special foods needed for infants, elderly persons, and those on limited diets. Most people in shelter can get along on about half as much as usual and can survive without food for several days if necessary. If possible, store canned or sealed-package foods, preferably those not requiring refrigeration or cooking.



SANITATION SUPPLIES. Since you may not be able to use your bathroom during the emergency, keep these sanitation supplies on hand: a metal container with a tight-fitting lid to use as an emergency toilet, one or two large garbage cans with covers (for human wastes and garbage), plastic bags to line the toilet container, disinfectant, toilet paper, soap, wash cloths and towels, a pail or basin, and sanitary napkins. Although desirable, keeping clean is nonessential to survival. Water should be saved mainly for drinking and for medical emergencies.

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MEDICINES AND FIRST AID SUPPLIES. Include medicines taken regularly or likely to be needed by family members. First aid supplies should include all those found in a good first aid kit (bandages, antiseptics, etc.), plus all the items normally kept in a well-stocked home medicine chest (aspirin, thermometer, baking soda, petroleum jelly, etc.). You should also have a good first aid handbook.



INFANT SUPPLIES. Families with babies should keep on hand at least a two-week stock of infant supplies such as canned milk or baby formula, disposable diapers, bottles and nipples, rubber sheeting, blankets, and baby clothing. Because water for washing might be limited, baby clothing and bedding should be stored in larger-than-normal quantities.



COOKING AND EATING UTENSILS. Emergency supplies should include pots, pans, knives, forks, spoons, plates, cups, napkins, paper towels, measuring cup, bottle opener, can opener, and pocket knife. If possible, disposable items should be stored. A heat source might also be helpful, such as a camp stove or canned-heat stove, since there would probably be no electric power. If a stove is used indoors, however, adequate ventilation is essential. (Do not use charcoal for heating or cooking.)



BEDDING. Blankets are the most important items of bedding needed in a shelter, but occupants probably would be more comfortable if they also have pillows, sheets, and air mattresses or sleeping bags.



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FIRE-FIGHTING EQUIPMENT. Simple fire-fighting tools, and knowledge of how to use them, are useful. A hand-pumped fire extinguisher of the inexpensive, 5-gallon, water type is preferred. Carbon tetrachloride and other vaporizing-liquid type extinguishers are not recommended for use in small enclosed spaces, because of the danger from toxic fumes. Other fire equipment for home use includes buckets filled with sand, a ladder, and a garden hose.



GENERAL EQUIPMENT AND TOOLS. The essential items in this category are a battery-powered radio and a flashlight or lantern, with spare batteries. The radio may be your only link with the outside world, and you may have to depend on it for all your information and instructions, especially for advice on when to leave shelter.



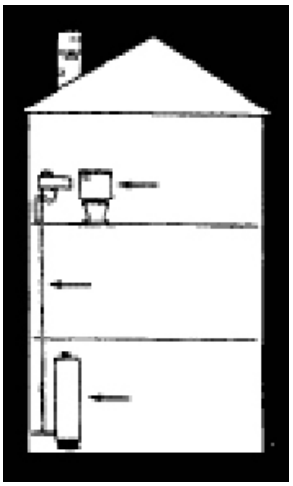
CLOTHING. Several changes of clean clothing—especially undergarments and socks—should be ready for shelter use incase water for washing is scarce.



Other useful items include: matches, candles, a shovel, broom, axe, crowbar, kerosene lantern, short rubber hose for siphoning, coil of half-inch rope at least 25 feet long, coil of wire, hammer, pliers, screwdriver, wrench, nails and screws.

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Care and Use of Water Supplies



Each person's need for drinking water will vary, depending on age, physical condition, and time of year. The average person in a shelter will need at least one quart of water or other liquids to drink per day, but more would be better. Each person should be allowed to drink according to need. Studies have shown that nothing is gained by limiting drinking water below the amount demanded by the human body. Even with a limited supply, it's safer to drink as needed in the hope that the supply can be replenished if your shelter stay warrants it.

In addition to water stored in containers, there is usually other water available in most homes that is drinkable, like:

- Water and other liquids normally found in the kitchen, including ice cubes, milk, soft drinks, and fruit and vegetable juices;
- Water (20 to 60 gallons) in the hot water tank;
- Water in the flush tanks (not the bowls) of home toilets;
- Water in the pipes of your home plumbing system.

In a time of nuclear attack, local authorities may instruct householders to turn off the main water valves in their homes to avoid having water drain away in case of break and loss of pressure in theater mains. With the main valve in your house closed, all the pepsin the house would still be full of water. To use this water, turn on the faucet that is located at the highest point in your house, to let air into the system; and then draw water, as needed, from the faucet that is located at the lowest point in your house. You should drink the water you know is uncontaminated first. If necessary, "suspicious" water, such as cloudy water from regular faucets or perhaps some muddy water from a nearby stream or pond, cane used after it has been purified. To purify water:

1. Strain the water through a paper towel or several thicknesses of clean cloth to remove dirt and fallout particles, if any. Or else lathe water "settle"

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in a container for 24 hours, by which time most solid particles probably would have sunk to the bottom.

2. After the solid particles have been removed, boil the water if possible for 3 to 5 minutes, or add a water-purifying agent to it. This could be either: (a) water-purifying tablets, available at drugstores, or (b) two percent tincture of iodine, or (c) liquid chlorine household bleach, provided the label says that it contains hypochlorite as its ~jy active ingredient. For each gallon of water, use 4 water-purifying tablets, or 12 drops of tincture of iodine, or 8drops of liquid chlorine bleach. If the water is cloudy, these amounts should be doubled.

Care and Use of Food Supplies

Food should be rationed carefully in a home shelter to make it last for at least a week. Half the normal intake should be adequate, except for children or pregnant women.

In a shelter, it is especially important to be sanitary in the storing, handling, and eating of food. Be sure to:

- keep all food in covered containers;
- keep cooking and eating utensils clean;
- keep all garbage in a closed container or dispose of it outside the home when it is safe to go outside. If possible, bury it. Avoid letting garbage or trash accumulate inside the shelter, both for fire and sanitation reasons.

Sanitation

In many home shelters, people would use emergency toilets until it was safe to leave shelter for brief periods of time. This kind of toilet, consisting of a watertight container with a snug-fitting cover, is necessary. It could be a garbage container or a pail or bucket. If the container is small, a large container (also with a cover) should be available to empty the contents into for later disposal. If possible, both containers should be lined with plastic bags.

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Every time the toilet is used a small amount of regular household disinfectant, such as creosol or chlorine bleach should be poured or sprinkled into it to keep down odors and germs. After each use, the lid should be put back on.

When the toilet container needs to be emptied and outside radiation levels permit, the contents should be buried in a hole one or two feet deep. This is to prevent the spread of disease.

When to Leave Shelter

The intensity of fallout radiation in your area is the major factoring determining when to leave shelter. If you see unusual quantities of gritty particles outside (on window ledges, sidewalks, cars, etc.) after an attack, you should assume that they are fallout particles and stay inside your shelter until you are told you may come out.

Special instruments are needed to detect fallout radiation and to measure its intensity. These instruments are part of the federal supplies provided to states for official use in monitoring radiation levels. Low-cost instruments to detect and measure fallout radiation are not now generally available for home shelter use. Therefore, you probably will have to depend on your local government to tell you when to leave shelter. This information probably will be given on the radio, which is one reason why you should keep a battery-powered radio on hand that works in your shelter areas.

As time passes, the radiation level will decline to a point where you can leave the shelter for short periods of time to perform emergency functions.

Personal and Community Preparedness

If the United States were attacked with nuclear weapons, people would-be forced to rely on self-help and sharing among their families, friends, and neighbors. This guidance is intended to help you better understand the effects of nuclear weapons and provide general information on what you can do to increase your chances for survival. It is offered as a supplement to the instructions that would be issued by your local government in an attack situation.

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For more information on your community's plans, contact your local or state emergency management (civil defense) office.

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PERMANENT SHELTERS

The following detailed plans are available without charge from your local or state emergency services (civil defense) office or by writing to the Federal Emergency Management Agency, P.O. Box 8181, Washington,

D.C. 20024, Attention: Shelter Plans. Please refer to title and number when ordering.

Home Shelter (H-i 2-1) An outside underground FALLOUT shelter.

Aboveground Home Shelter (H-12-2) An outside aboveground FALLOUT shelter for use in areas with a high water table.

Home Blast Shelter (H-12-3) An outside underground BLAST shelter.

Home Fallout Shelters (H-i 2-A and H-12-B) Modified ceiling shelters in basements.

Home Fallout Shelter (H-12-C) Small basement corner shelter.

Keep in mind that only the Home Blast Shelter (H-12-3) provides protection from blast; all the other plans listed provide fallout protection only.

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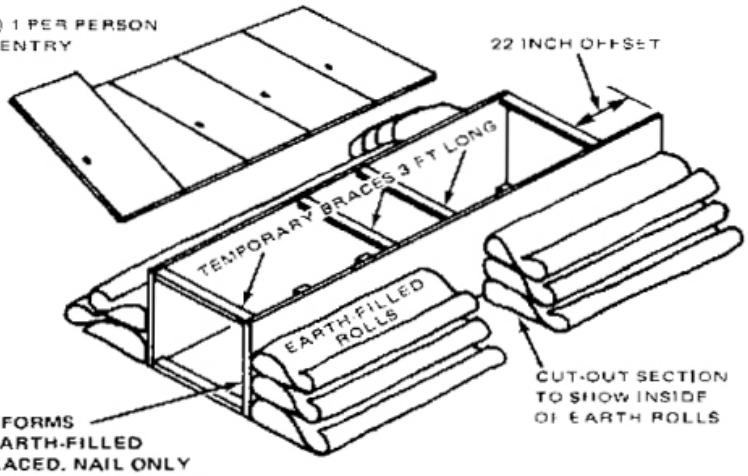
Expedient Fallout Shelters Above-Ground Door-Covered Shelter

GENERAL INFORMATION

THE ABOVE-GROUND DOOR-COVERED SHELTER IS DESIGNED FOR AREAS WHERE BELOW-GROUND SHELTERS ARE IMPRACTICAL BECAUSE THE GROUNDWATER TABLE OR BEDROCK IS CLOSE TO THE GROUND SURFACE. THIS SHELTER CAN BE BUILT BY FOUR PERSONS WORKING A TOTAL OF 10 HOURS EACH.

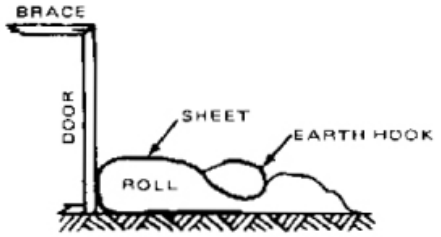
READ AND STUDY ALL INSTRUCTIONS BEFORE STARTING TO BUILD. IF DOOR WIDTHS MEASURE LESS THAN 32 INCHES, USE A COMBINATION OF DOORS TO PROVIDE A MINIMUM OF 32 INCHES OF DOOR-WIDTH PER PERSON.

STEP 1
SELECT A SHELTER LOCATION WHERE THERE IS LITTLE OR NO CHANCE OF RAINWATER PONDING ON THE GROUND SURFACE. STAKE OUT SHELTER, REMOVE DOOR KNOBS. ALLOW 1 DOOR FOR EACH PERSON PLUS 1 DOOR FOR ENTRY/EXIT AT END. LIMIT IS 8 PERSONS PER SHELTER.



STEP 2
SET UP DOORS AS FORMS AROUND WHICH EARTH-FILLED ROLLS WILL BE PLACED. NAIL ONLY TOP BRACES. NAILS MUST BE REMOVED LATER. BRACE ALL CORNERS, CENTER, TOP AND BOTTOM OF EACH DOOR.

STEP 3
BEGIN TO PLACE EARTH-FILLED ROLLS AGAINST DOOR FORMS. TO FORM EARTH ROLLS, SEE EARTH-FILLED ROLL DETAIL BOTTOM OF PAGE.



EARTH-FILLED ROLL DETAIL

1. PLACE 2 FT OF SHEET ON GROUND AND TEMPORARILY DRAPE REMAINDER OF SHEET ON DOOR
2. PLACE EARTH ON SHEET—SHAPE AS SHOWN
3. FOLD SHEET OVER SHAPED EARTH
4. PLACE EARTH ONTO SHEET AT NARROW TRENCH
5. FOLD SHEET TO FORM EARTH HOOK. HOOK WILL ANCHOR SHEET
6. REPEAT TO FORM NEXT EARTH-FILLED ROLL

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STEP 4
DIG 14" DEEP, 36" WIDE TRENCH INSIDE SHELTER. EARTH CAN BE USED TO FORM SIDE EARTH-FILLED ROLLS. TRENCH CAN BE MADE UP TO 3 FEET DEEP IF CONDITIONS PERMIT.

STEP 5
MOUND EARTH AGAINST THE EARTH-FILLED ROLLS AS SHOWN. CONTINUE PLACING EARTH AND SHEETS TO FORM EARTH-FILLED ROLLS.

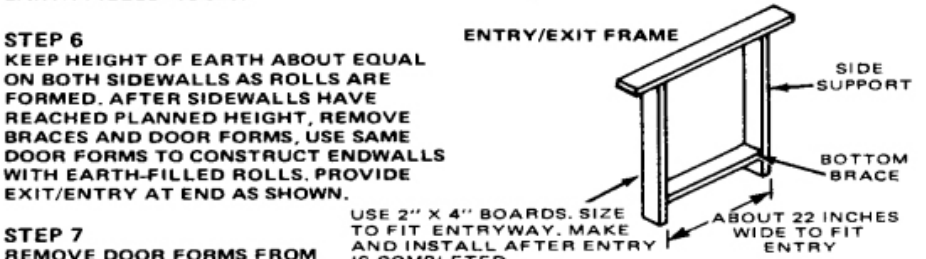
STEP 6
KEEP HEIGHT OF EARTH ABOUT EQUAL ON BOTH SIDEWALLS AS ROLLS ARE FORMED. AFTER SIDEWALLS HAVE REACHED PLANNED HEIGHT, REMOVE BRACES AND DOOR FORMS, USE SAME DOOR FORMS TO CONSTRUCT ENDWALLS WITH EARTH-FILLED ROLLS. PROVIDE EXIT/ENTRY AT END AS SHOWN.

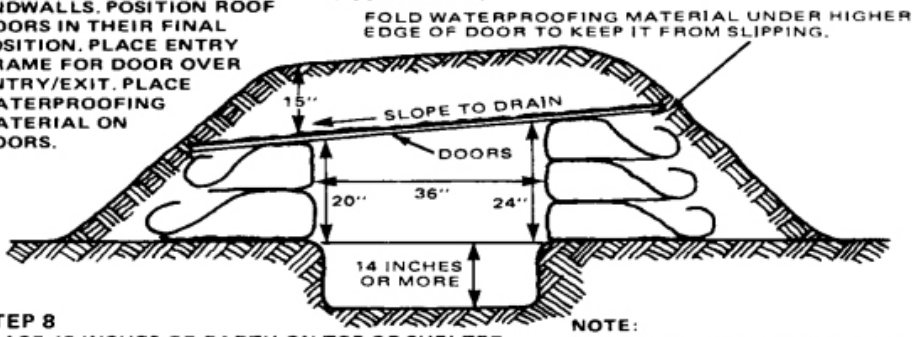
STEP 7
REMOVE DOOR FORMS FROM ENDWALLS. POSITION ROOF DOORS IN THEIR FINAL POSITION. PLACE ENTRY FRAME FOR DOOR OVER ENTRY/EXIT. PLACE WATERPROOFING MATERIAL ON DOORS.

STEP 8
PLACE 15 INCHES OF EARTH ON TOP OF SHELTER. IN HOT WEATHER CONSTRUCT A SHELTER VENTILATION AIR PUMP.

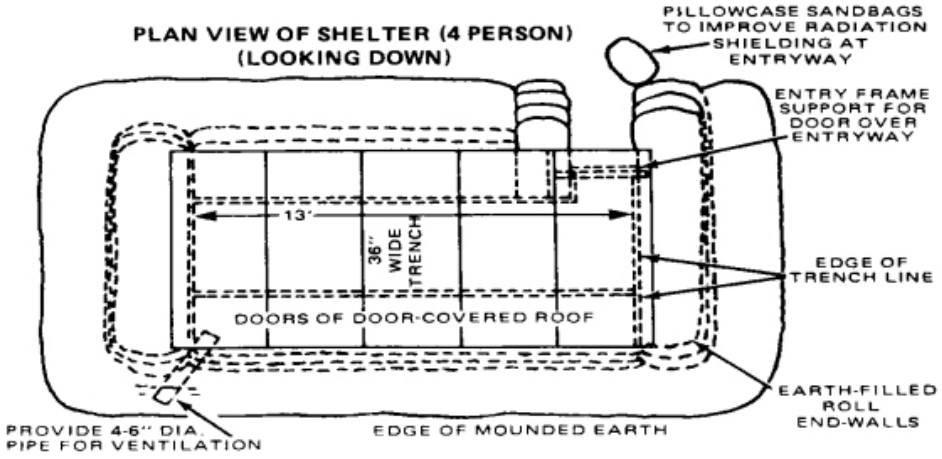
TOOLS AND MATERIALS

1. Doors as indicated.
2. Pick or Mattock and Shovel.
3. Two Buckets or Large Cans to Carry Earth.
4. Tape Measure, Yardstick or T Ruler.
5. Saw, Axe or Hatchet.
6. Hammer and at Least 20 Nails—2½" Long.
7. At Least 4 Double Bed Sheets for Each Person to be Sheltered.
8. Pillowcases and Rainproofing Materials Such as Plastic or Polyethylene.
9. Work Gloves for Each Worker.
10. Lumber for use as Temporary Braces and for Entry/Exit Frame.





NOTE:
IF TRENCHING IS IMPRACTICAL HEIGHTEN WALLS BY USING ADDITIONAL EARTH ROLLS.



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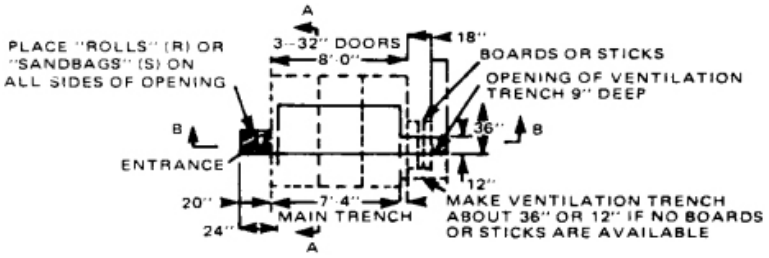
Expedient Fallout Shelter Door-Covered Shelter Trench Shelter

GENERAL INFORMATION

THIS SHELTER IS DESIGNED FOR AREAS WHERE THERE IS A SHORTAGE OF SMALL TREES AND/OR BUILDING MATERIALS. THE DEPTH TO GROUND WATER AND ROCK MUST ALSO BE BELOW THE BOTTOM OF THE TRENCH. IN ADDITION, THE EARTH MUST BE SUFFICIENTLY FIRM AND STABLE SO THAT THE TRENCH WALLS WILL NOT COLLAPSE. THE SHELTER (3-PERSON CAPACITY(CAN BE CONSTRUCTED BY 3 PEOPLE WORKING AN APPROXIMATE TOTAL OF 12 HOURS EACH. READ AND STUDY ALL INSTRUCTIONS BEFORE BEGINNING TO BUILD.

STEP 1

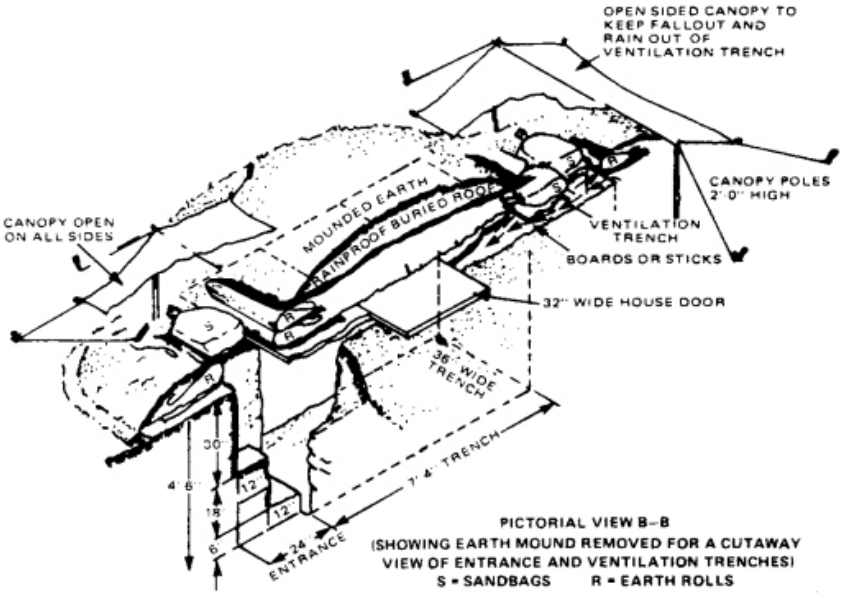
SELECT A REASONABLY LEVEL SITE. LAY OUT THE SHELTER AS ILLUSTRATED BY LAYING DOORS SIDE BY SIDE TO DETERMINE THE SHELTER LENGTH. DOOR KNOBS SHOULD BE REMOVED.



LAYOUT FOR 3-PERSON CAPACITY

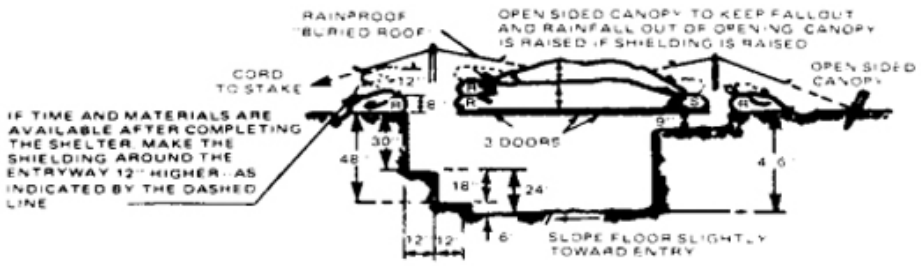
STEP 2

EXCAVATE THE SHELTER TRENCH, ENTRYWAY AND VENTILATION TRENCH AS SHOWN. PILE THE EXCAVATED EARTH AT LEAST 3 FEET BEYOND THE TRENCH LIMITS SO THAT IT WILL NOT INTERFERE WITH THE LATER PLACEMENT OF DOORS OVER THE TRENCH.



PICTORIAL VIEW B–B
(SHOWING EARTH MOUND REMOVED FOR A CUTAWAY VIEW OF ENTRANCE AND VENTILATION TRENCHES)
S = SANDBAGS R = EARTH ROLLS

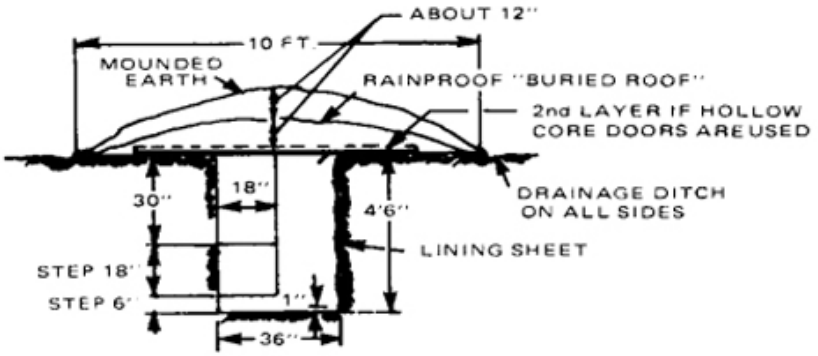
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SECTION B–B

STEP 3

IF THERE ARE ADEQUATE SHEETS OR FABRIC AVAILABLE, LINE THE TRENCH WALLS WITH THEM. THEN PLACE DOORS OVER THE TRENCH.



SECTION A–A

STEP 4

IN ORDER TO HOLD IN PLACE AN ADEQUATE AMOUNT OF EARTH ON TOP OF THE DOORS, CONSTRUCT EARTH "ROLLS" AROUND THE ENTRY-WAY AS SHOWN. THE "ROLLS" WILL KEEP THE EARTH FILL IN PLACE. SEE HOW TO MAKE AN EARTH ROLL.

STEP 5

PLACE EARTH FILL AND THE WATERPROOFING MATERIAL OVER THE DOORS. PLACE SANDBAGS AS SHOWN ON THE ILLUSTRATIONS.

STEP 6

CONSTRUCT SHALLOW DRAINAGE DITCHES ON ALL SIDES AND PLACE CANOPIES OVER THE OPENINGS.

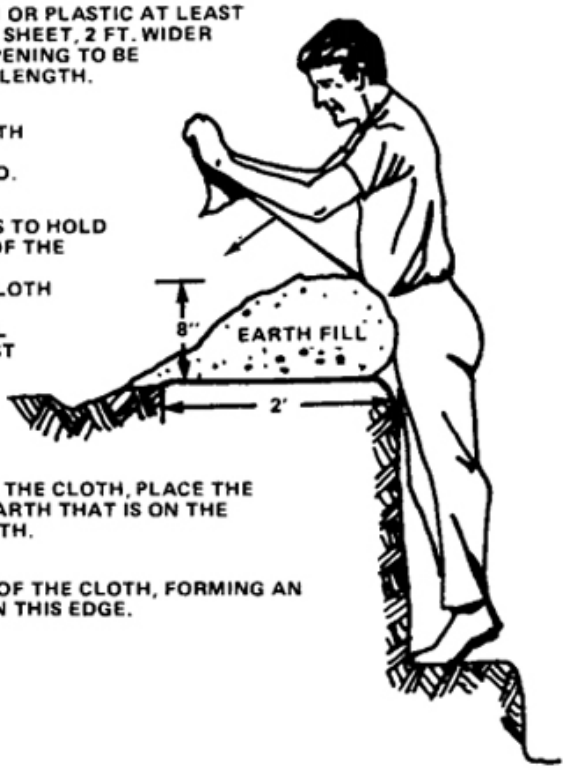
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TOOLS AND MATERIALS

1. Doors (Interior solid or hollow-core)—1 full size (32" minimum width) for each person. If doors measure less than 32" in width, use a combination of doors to provide the minimum width per person. IF DOORS ARE HOLLOW CORE-USE TWO LAYERS.
2. Pick and/or mattock.
3. Long-handled shovels and square-bladed shovel.
4. Rainproofing material—(e.g., plastic sheeting, canvas, plastic table covers, etc.) at least 25 square feet per person plus 2 pieces about 6 ft. by 6 ft. for use as canopies.
5. One bedsheet or the equivalent of 50 sq. ft. of cloth or plastic per person to line trench and make earth-filled rolls.
6. Two pillowcases per person to use as sandbags.
7. String or cord to tie canopies and sandbags.
8. Knife.
9. Several boards about 3 feet long.
10. Measuring tape and/or ruler.
11. Work gloves for each worker.
12. Hammer and hand saw.

HOW TO MAKE AN EARTH ROLL

1. SELECT A PIECE OF CLOTH OR PLASTIC AT LEAST AS STRONG AS A NEW BED SHEET, 2 FT. WIDER THAN THE SIDE OF THE OPENING TO BE PROTECTED, AND 5 FT. IN LENGTH.
2. PLACE 2 FT. OF THE LENGTH OF THE CLOTH ON THE GROUND, AS ILLUSTRATED.
3. WHILE USING BOTH HANDS TO HOLD UP 3 FT. OF THE LENGTH OF THE CLOTH AND WHILE PRESSING AGAINST THE CLOTH WITH YOUR BODY, HAVE ANOTHER PERSON SHOVEL EARTH ONTO AND AGAINST THE CLOTH.



4. WHILE STILL PULLING ON THE CLOTH, PLACE THE UPPER PART OVER THE EARTH THAT IS ON THE LOWER PART OF THE CLOTH.
5. COVER THE UPPER EDGE OF THE CLOTH, FORMING AN EARTH-FILLED "HOOK" IN THIS EDGE.

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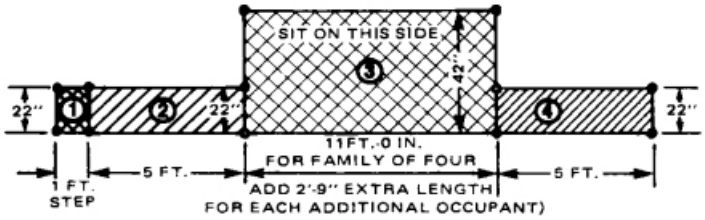
Expedient Fallout Shelters Log-Covered Trench Shelter

GENERAL INFORMATION

THIS SHELTER IS DESIGNED FOR AREAS WHERE THE DEPTH BELOW THE GROUND SURFACE TO HARD ROCK OR GROUNDWATER IS BELOW THE BOTTOM OF THE TRENCH. ALSO, THE EARTH MUST BE SUFFICIENTLY FIRM AND STABLE SO THAT THE TRENCH SIDEWALLS WILL NOT CAVE IN. IN ADDITION, ADEQUATE SMALL TREES THAT CAN BE CUT FOR LOGS MUST BE AVAILABLE IN THE IMMEDIATE AREA. THE SHELTER (4-PERSON CAPACITY) CAN BE BUILT BY 4 PEOPLE WORKING A TOTAL OF 12 HOURS EACH. AFTER INITIAL COMPLETION, THE SHELTER CAN BE ENLARGED TO A WIDTH OF 5 FT. - 6 IN. AND DEEPENED TO 6 FT. HOWEVER, 9–FT LOGS MUST BE USED IN PLACE OF 7–FT LOGS AND THE BURIED ROOF MUST BE LARGE ENOUGH TO COVER THE WIDENED SHELTER DURING THE INITIAL CONSTRUCTION.

STEP 1

CLEAR AREA OF BRUSH AND TALL GRASS. LAYOUT SHELTER AS SHOWN BELOW.



LEGEND ● = WOOD OR METAL STAKE

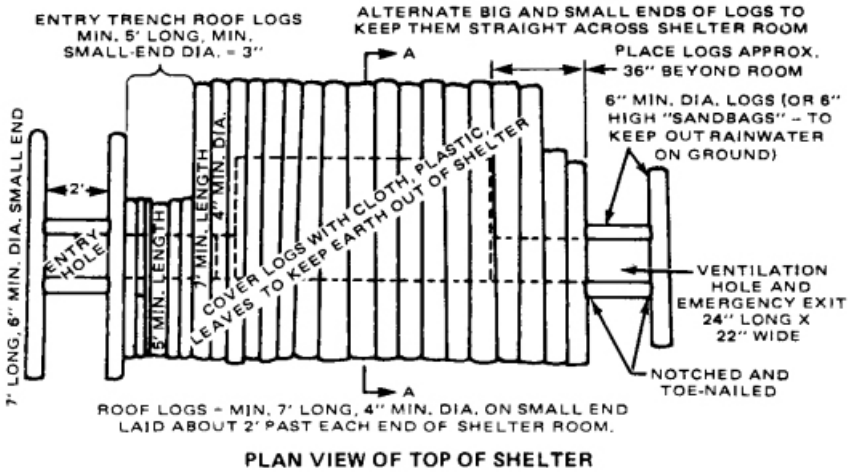
① ENTRANCE STEP 2'-6" DEEP
② ENTRANCE TRENCH 4'-0" DEEP
③ SHELTER ROOM 4'-6" DEEP
④ VENTILATION TRENCH 24" DEEP

STEP 2

BEGIN EXCAVATING THE TRENCH. PLACE EXCAVATED EARTH AT LEAST 3 FEET BEYOND THE EDGE OF TRENCH SO THAT THE ROOF LOGS CAN LATER BE PLACED OVER THE TRENCH.

STEP 3

AS THE TRENCH EXCAVATION PROGRESSES, WORKERS SHOULD BEGIN CUTTING LOGS TO THE LENGTH AND SIZE AS SHOWN ON THE ILLUSTRATIONS.

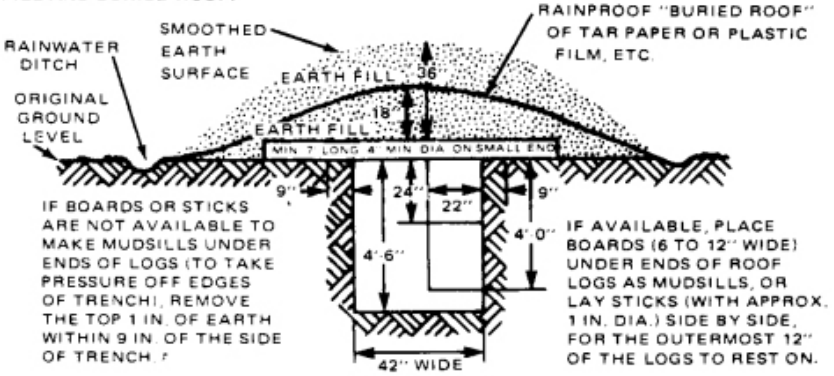


PLAN VIEW OF TOP OF SHELTER

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STEP 4

PLACE LOGS OVER TRENCH. POSITION TIES FOR BED SHEET CHAIRS OR HAMMOCKS. PLACE NEWSPAPER OR OTHER MATERIAL AS INDICATED OVER LOGS. PLACE EARTH FILL AND BURIED ROOF.



SECTION A–A

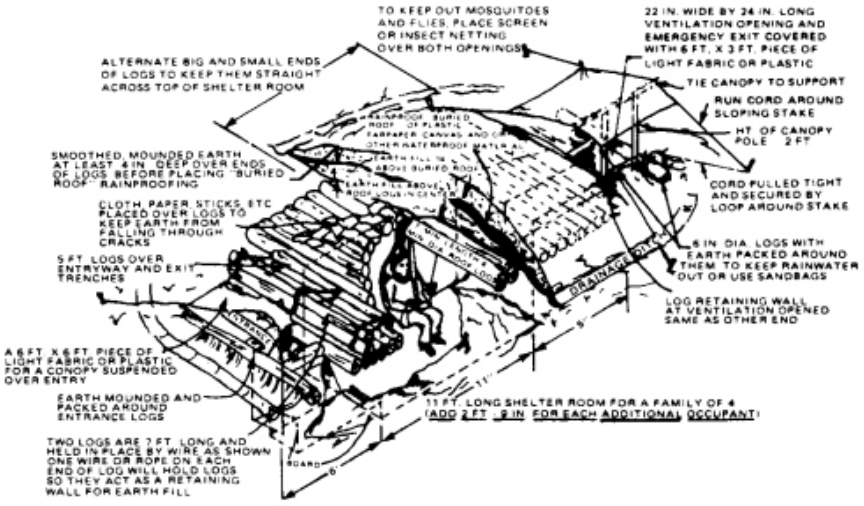
STEP 5

CONSTRUCT CANOPIES OVER THE OPENINGS

TOOLS AND MATERIALS

1. Saw and/or axe.
2. Pick or mattock.
3. Long-handled shovels.
4. Rainproofing material (plastic or polyethylene) 25 square yards. For each person above 4, add 2 sq. yds.
5. 50 feet of strong string or cord and a knife.
6. Tape measure or yard stick.
7. At least 8 pillow cases and/or sandbags.
8. Work gloves.
9. Bed sheets for use as "chairs" or "hammocks"– 1 per person at least 15 feet of strong rope or cord per bed sheet.
10. 15 pounds of newspapers to place over roof logs to keep earth from falling through cracks between logs

APPROX. NO. OF POLES REQ'D.	
45 – 7' LONG	4" DIA.
10 – 5' LONG	4" DIA.



PICTORIAL VIEW OF LOG-COVERED TRENCH SHELTER WITH PART OF THE ROOF CUT AWAY TO SHOW THE RAINPROOF "BURIED ROOF".

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