



# Take Shelter

AT HOME AROUND THE WORLD

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*For T—may our personalities always be at peace.  
And for Brandy—for as long as our paths may  
cross, know the effect ripples much longer. All my  
love and many thanks. —DTS*

*For Luke—with many thanks for  
fuelling the creative fires! —NT*





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# Introduction



*The phrase Home, Sweet Home reminds us that a house is more than just a place to fall asleep each night.* PIXELROBOT/  
DREAMSTIME.COM



*Unpacking familiar books always makes somewhere new feel like home.*  
DANI TATE-STRATTON

Walls. A door. Windows. A roof. All houses have these basic components and provide shelter from the elements and a place for people to eat, sleep and socialize. From sprawling mansions to precarious cliff dwellings, the variation in what we humans call home is staggering. When I was growing up, my family moved a lot, so by the time I was in high school I had lived in more than fifty places, from a high-rise apartment in a big city to a tiny cabin in the mountains.

With all that packing and unpacking, settling in and moving on, I've had lots of time to think about all the different kinds of places people set up, organize, and move into when they are making a home for themselves and their families. I love seeing how people all over the world build houses that are energy efficient, use local materials and are both beautiful to look at and comfortable to live in.

Humans have always experimented with different building materials like straw, reeds, clay, concrete, brick, glass and modern composite materials like carbon fiber. Some houses today are built with innovative new materials while others ingeniously repurpose used material and use smart design to create efficient and environmentally sensitive spaces.

In *Take Shelter* we'll visit homes all over the world to see how people create that special place where they hang their hats, whether underground or in outer space. So open the door, come on in and make yourself at home!

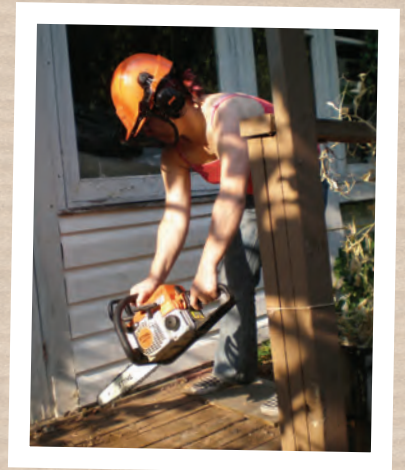




*Extravagant castles like Neuschwanstein in Germany are often tourist attractions today but were once family homes. Imagine how hard it would be to find a toy if you weren't sure which of the 200 rooms you had left it in!* EG004713/DREAMSTIME.COM

## My Place

When I moved back to Vancouver Island after studying and working in Japan, I wanted to have my own space while still living on the family farm. I set my sights on the pigeon coop 50 meters from the house. The homeowners before us used to keep racing pigeons and had built them a lovely 2 meter by 8 meter shed in which to live. My grampa and I spent several months cleaning, insulating, putting in real walls and making sure it was nice and snug for people, not pigeons. Now it's the perfect bedroom and hangout space away from the house, and I always get a giggle out of telling people that I live in an abandoned pigeon coop. (DTS)



*Renovating the pigeon coop was my first introduction to power tools, but I sure learned a lot! Years later, every time I go inside I still feel proud that I helped build my home with my own hands.*

E. COLIN WILLIAMS



## CHAPTER ONE

# In the Ground

### SNUG AS A BUG IN A...CAVE



Families have lived in these cave houses for hundreds of years. MATHES/DREAMSTIME.COM

A pre-existing hollow in the ground or cliff must have seemed a welcome place to stay for early peoples in need of shelter during the Stone Age (Paleolithic Era). Though this period is long gone (estimates vary from about 40,000 to 2 million years ago), even today many people live in caves or underground dwellings, using the Earth as their main protection from the elements.

According to archaeologists, there are two types of cave dwelling: the *cliff house*, which is built onto platforms on a cliff, and the *cavete*, which makes use of existing recesses or openings.

### WAY BACK WHEN...IN IRAN

Many cave homes have long been abandoned, but not all cave dwellings are architectural relics. In Iran, at the foot of Mount Sahand, people have been living in a village named Kandovan for centuries. One of just a handful of cave villages continuously inhabited to this day, Kandovan is built into deposits made by a now-dormant volcano. Cone-shaped pillars of rock were left in





*These rocks in Turkey were hollowed out to create cave cities.* ELENA YAKUSHEVA/DREAMSTIME.COM

the wake of its previous explosions and have become home to many generations of family members.

A typical home in this region has four stories. Animals are kept on the ground level, while people sleep and live on the second and third stories. The fourth level is used for storage. The buildings have been modernized over the years and now include amenities like electricity.

## KEKULI HOUSES

The Interior Salish people of British Columbia traditionally built a winter house called a *kekuli*. These homes are partially underground, which helps keep them warm during cold weather. Logs span an excavated area and provide support for the roof covering of strips of cedar bark, grass or pine needles, and earth.

**HOME FACT:** Though it sounds a bit like a type of dinosaur, the word *troglydte* actually refers to a person who lives in a cave or belongs to a cave-dwelling community. The residents of Kandovan are modern-day troglodytes.







*Kekuli houses like this one provide low-profile protection from the elements.*  
THE KINGFISHER INTERPRETIVE CENTRE

Houses like these (known as *pit houses*) can be found all over the world. The oldest pit house is believed to be in the Central Ukraine. The wall and roof supports are made of mammoth bones!

## LUXURY LIVING UNDERGROUND

During the Cold War that started after World War II and lasted through the 1980s, many people in North America and Russia (then known as the USSR) were convinced that a nuclear war was going to happen and the world would become uninhabitable because of radiation poisoning. Some people believed that by building homes underground they could survive the initial nuclear attack and wait until the worst of the radiation had dissipated before emerging from their safe havens to rebuild society.

In Las Vegas, a two-bedroom home is hidden eight meters (twenty-six feet) below ground, underneath a normal-looking

**HOME FACT:** Over 40 million people live in underground houses in the neighboring northern provinces of Shaanxi and Shanxi in China. That's more than the entire population of Canada!

## My Place

When I visited my father's family home in England, I was surprised to see a small, curved building made of corrugated iron in a neighbor's backyard. The hut was being used to store garden tools, but when my father was a child, many families in England had little huts called Anderson Shelters in their gardens. Bomb shelters like these protected people during air raids and were equipped with blankets, tinned food and water. Families also stored games in the shelters so there was something to keep children entertained. Small stoves were used to heat food and keep everyone warm. Oil lamps and candles were the most common sources of light. (NT)



*The sturdy huts were erected and then buried under a thick layer of dirt so they could be used as bomb shelters during World War II.* MARTIN STANLEY



house in the suburbs. The underground house has a false sky, a swimming pool, a putting green and a barbecue disguised as a massive boulder. A sophisticated ventilation and air purification system is meant to keep the atmosphere breathable, even after a disastrous attack, and of course there is lots of room to store canned goods, water and other food and supplies in case it isn't safe to venture above ground.

Even if a global disaster is not on the horizon, there are many advantages to building a home partially or completely underground. Temperature control is easy with an underground home. In the summer, things tend to stay cool, and in the winter, the warmth stored in the ground during the hot months gently warms the interior. Some homes that are built completely underground become almost invisible, and it's possible to use the roof (which is actually at ground level) to increase the space available for growing food crops. Light floods into a well-designed buried home through light tunnels and by taking advantage of a slope to build many windows into downhill-facing walls.



*Stone mason Joe Thompson used 120 tonnes of stone, most of it from local sources, to build a Hobbit-inspired house on Vancouver Island.*

BRUCE STOTESBURY, TIMES COLONIST

*This group of nine houses is built around an artificial pond in Dietikon, Switzerland, and includes indoor and outdoor living space as well as shared underground parking. VETSCH ARCHITEKTUR AG*





## LIVING (WAY) DOWN UNDER



*The Catholic Church of Saint Peter and Saint Paul is completely underground, giving the residents of Coober Pedy a unique—and temperate—place to worship.*  
YAROSLAV SOROKOTYAGA/DREAMSTIME.COM

One of the settlements taking advantage of earth as a natural insulator can be found in Coober Pedy, Australia, an opal-mining town with 1,700 residents. Since extensive underground networks were already in place from the old opal mines, it was a logical step for locals to move underground to escape the intense summer heat of the Australian Outback. Temperatures in the area regularly climb over 40 degrees Celsius (about 100 degrees Fahrenheit). While not all residents live underground, the network of “dugouts” is extensive and also features several underground churches, a jewelry store, a bar and—in one house—an underground swimming pool. These homes are also good for the environment, as they have a much smaller *carbon footprint* (the amount of carbon your actions release into the atmosphere) than that of a traditional home.

## NESTLED UNDER A GREEN ROOF



*Vegetables, herbs, grasses, moss and decorative plants can all be grown on correctly prepared rooftops. A green roof provides excellent insulation and helps modulate the temperature inside the building.* TONYTHETIGER/WIKIPEDIA.ORG

Houses dug into the ground can be easily covered by a “green” or “living” roof, which uses plant material and requires several layers, each with a particular function. To stop water from dripping through after a heavy rain (or after the roof gets watered), a waterproof membrane protects the inside of the building. Plants need soil to grow, but soil can be heavy, particularly when it gets waterlogged. Special lightweight planting mixes provide plants with nutrition and support for their roots, and strike a balance between holding enough water so plants don’t dry out and draining well enough that the plants don’t drown.

## LIVING ROUGH IN LAS VEGAS

People who are desperate for housing sometimes have to look beyond the traditional four walls and a roof for ideas.



*A family sits down to eat in their fairy chimney (a type of rock formation) in Cappadocia, Turkey.*

BOISVIEUX CHRISTOPHE/HEMIS.FR/GETTY.COM







*Residents of the underground tunnels go to great lengths to make their living areas as homey as possible.* AUSTIN HARGRAVE



For as many as 1,000 homeless people in Las Vegas, the extensive network of storm drain tunnels has become their home. Tunnel residents, including couples, children and their pets, create living spaces of up to 37 square meters (400 square feet) with furniture and household supplies gathered from the streets of the city. While the tunnel dwellers are able to take advantage of pre-existing structures that include floors, a roof and walls, as well as electrical outlets for small appliances, there are obvious drawbacks to such a living situation.

Given that the purpose of these underground tunnels, which are hundreds of kilometers in length, is to drain water away from the city and prevent flooding, underground residents are in constant danger of flash floods. Water levels can rise up to thirty centimeters (twelve inches) per minute, and personal belongings are often kept in crates for easy transfer to high shelves.

## My Place

Our house, built in the 1950s, has a mysterious little room we've always jokingly called "the bomb shelter." Given its location in the basement, it was probably built as a root cellar. When I started learning how to make cheese, I read about how the best cheese makers use caves for aging wheels of cheese before they are ready to eat. Perfect! I thought, and moved my cheddar right in, where it aged with great success. It was great to finally find the perfect job for that funny little room. (DTS)



*The mysterious room under the front steps has some cavelike properties—always cool with a consistently higher humidity than the rest of the house.*

NIKKI TATE



It's far from ideal to live in a place where water streams along the floor, it's nearly always dark, and creatures like crayfish and rats share your home. However, directly beneath the glittering lights of Las Vegas's famous Strip, this parallel world in the storm tunnels provides relative safety and stability for residents.

## 344 DAYS UNDERGROUND

The record for the longest time spent continuously dwelling in a cave without emerging at all is 344 days. In World War II, Jewish people across Europe were being persecuted, and several Ukrainian families took refuge in an extremely long cave known as Priest's Grotto.

Of course, if you are hiding in a large cave, too scared to emerge for fear of capture, it would be difficult to know when to come out. Eventually, a kind farmer left a note in a glass bottle that he tossed near the mouth of the cave. On the note he wrote, *The Germans have already gone*. Some of these same friendly farmers helped sustain the families by selling food to them, but other neighbors launched attacks on those hiding in the caves, making their eventual survival even more miraculous. In fact, only 1 percent of Jewish families survived World War II in Ukraine, and the cave is credited with being critical to saving many of those lives.

It must have been quite a shock for those who re-emerged into the light after so long. It's unpleasant enough for your eyes when someone turns on the light and interrupts your sleep. Now imagine your eyes haven't seen natural light—and in fact have rarely seen the light of candles—for nearly a year. For one young girl, it was also very confusing. Four-year-old Pepkala Blitzer later recalled asking her parents to turn off the bright candle—she had forgotten what the sun was like and couldn't remember ever having seen it.

**HOME FACT:** In a cave, you can make water from air! Caves can be damp, which isn't ideal for human habitation. To get around this problem, one family in Festus, Missouri, uses dehumidifiers to pull up to 380 liters (about 100 gallons) of water per day from the air in their cave home, which they then recycle for their plants, animals and garden.



*Thirty-eight people evaded the Nazis by hiding in this cave for 344 days during World War II.* PETER LANE TAYLOR

