Storm Shelters

My old Labrador retriever was afraid of nothing, except storms. She could hear thunder long before I could and would immediately seek shelter. Going underground in a storm or extreme weather is natural for animals. Desert animals seek shelter from extreme heat while northern species hibernate through the long winter months without freezing.

On a recent trip with my grandchildren I found myself in a rented condominium watching an extreme storm approach. The local television station provided a storm tracking with details of where tornadoes might touch down. With no basement to run to, we developed a plan to hide in the small, main floor bathroom if things got bad. It was when the local radio announcer said: “All people living in mobile homes get out now and seek shelter”, that I knew there was a serious problem. The question is: where do you go in the middle of the night in the pouring rain?

A number of communities, trailer parks, children’s camps and individual homeowners have found a solution. Underground storm shelters constructed of corrugated steel pipe (CSP) provide immediate shelter from the storm.

CSP has a long history for underground shelter. During WW II countless lives were spared in backyard bomb shelters and military bunkers. The Cold War encouraged the installation of private bomb shelters. CSP formed a major component of the “Diefenbunker” where the Canadian Parliament could hide and operate during a nuclear attack. The Svalbard Global Seed Vault is located near Longyerbyen Norway, the most northern town in the World. This bank was built to last 10,000 years and contains and protects samples of all the seeds of the World that have ever been grown and collected.http://www.cbsnews.com/stories/2008/03/20/60minutes/main3954557.shtml#

HORIZONTAL SHELTER WITH PERSON DOOR, STAIRS AND RAIN COVER

A WELL EQUIPPED SHELTER

Storm Shelters

While the large vaults are often underground chambers carved deep into to rock the entrances are constructed as long sloping tunnels or portals of Structural Plate Corrugated Steel Pipe (SPCSP). These must not only support heavy overburden but also must resist a variety of impact and live loads resulting from earthquakes, storms and war time events.

Storm shelters for personal or community use tend to be smaller. These self contained units are fabricated from CSP by qualified fabricators. The main chamber, usually consisting of a 3 metre length of 2400mm diameter CSP, is set on a horizontal plane either underground or on the surface and is covered in a mound of earth. These structures can easily be expanded simply by adding additional lengths of CSP. As storms develop quickly and often with little warning, attention must be paid to the entrance design and location. The entrance must be easy to find in extreme weather and be accessible to persons of all ages and physical ability. Entrances may vary from a wheelchair accessible full height hinged door to a vertical access hole. Access may be a ramp, stairs, ladder, a fire pole, a tube slide or a combination of these to ensure that everyone can get inside quickly and safely.

In some cases the CSP is installed vertically as a caisson with a hatch door on top. These are accessed by ladder or fabricated stairs. While most shelters are round, pipe-arch shapes are often used to reduce excavation or to fit into a restricted space.

Entranceways need to be closed and secured from the inside and should be designed to swing in. This reduces the likelihood of the occupants becoming trapped by falling debris. Internal locking bars should have a pull rope feature that is visible on the outside and allows rescue workers to look in and enter the shelter.

EASY ACCESS TO THE HOUSE

Storm Shelters

Everyone who is expected to use a shelter must know where it is and how to enter it. Practice drills are a good idea to ensure that everyone can enter quickly and safely and knows what to expect once inside. Each shelter should contain a drain or be equipped with a hand pump. Other emergency items include flash lights, candles, matches, plastic pail, toilet paper, first aid kit, blankets, whistle, cell phone, battery radio, drinking water, and food. A ladder, rope, hand saw, axe, shovel and post jack can be useful tools to have readily on hand when the storm has passed. It is important to let someone from out of town and your fire department know that you have a storm shelter. They will be looking for you.

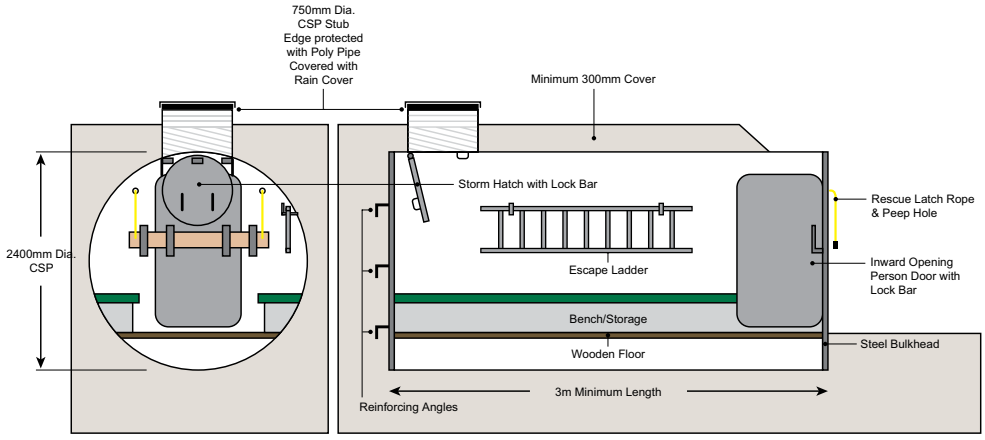
A number of standard designs are available from local CSP fabricators as are custom designs that answer specific requirements.

VERTICAL CAISSON STYLE SHELTER WILL BE SET IN GROUND

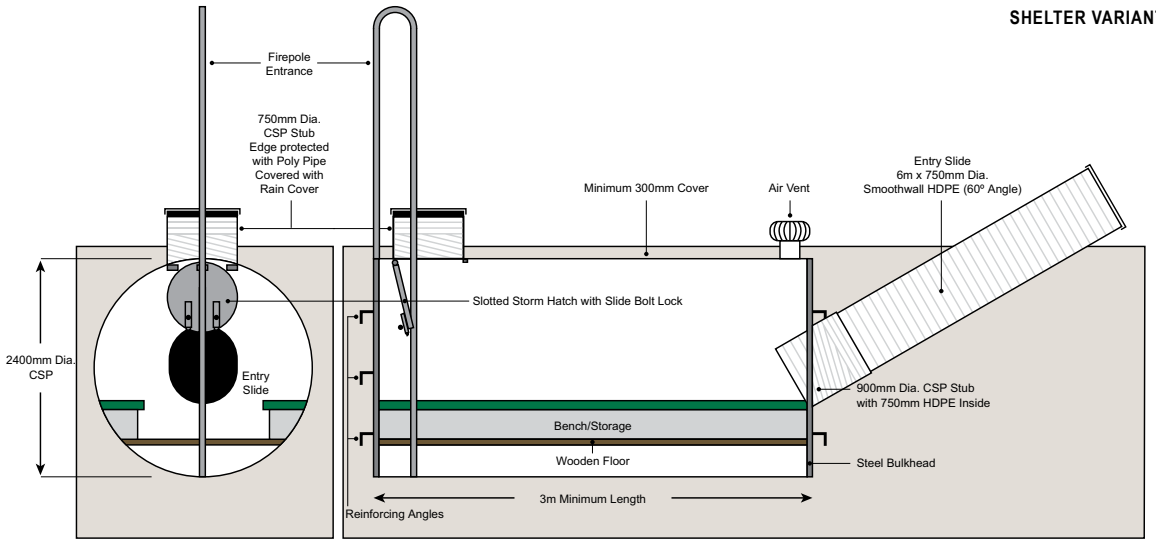
STORM HATCH RAIN COVER MAY BECOME BLOCKED BY DEBRIS

Storm Shelters

SHELTER VARIANT 1



SHELTER VARIANT 2



IT IS ADVISABLE FOR ALL SHELTERS TO BE EQUIPPED WITH:
FIRST AID KIT, BOTTLED WATER, BLANKETS, RADIO, FLASHLIGHT/LAMPS, CANDLES, MATCHES, CELL PHONE, HAND BILGE PUMP, DRY GOODS ETC.