The Smart Home Pro™ Presents In-Ground Fire Shelter™ Installation Guidelines and Best Practices

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The Smart Home Pro

In-ground Fire Safety Shelter

Installation Best Practices

Site Selection Requirements : The following is a list of considerations that must be adhered to when choosing an In-ground Fire Shelter installation site. An In-ground Fire Shelter can also be relocated at a later date if required to suit future building extensions.

Considerations :

1. Distance from the main residence. When selecting a site consideration must be given to the age of the occupants and or any disabilities.
2. The siting of the Shelter (in relation to slope, aspect, orientation and vegetation) must minimize exposure from the fire front and other structures.
3. The most common wind direction and the most likely path a fire will take.
4. The construction of the house – brick veneer, timber, other.
5. The siting distance from other out-buildings or car-ports or storage sheds.
6. Trees and vegetation re – distance from, amount, size, overhanging, relocation, removal.
7. Clear pathway from the residence to the fire Shelter.
8. Access for machinery re – crane truck and excavator.
9. Fences, boundaries, easements and other services.

It is not always possible to avoid overhanging tree branches, in this situation the tree branches must be trimmed or removed. A permit may be required from your local council before any clearing work can be started.

In-ground Fire Shelter Site Selection :
The following criteria must give careful consideration to the age of the occupants and or, any disabilities which could affect access and so impact on the site selection.

1. Setback from residence: The In-ground Fire Shelter access door is to be located a minimum of 9 yards and a maximum of 44 yards from the residential dwelling. Ten meters is considered a safe distance should the dwelling ignite following a wildfire event. Forty meters is considered a safe distance in terms of the time taken to get to the In-ground Fire Shelter in an emergency situation. The access door must be oriented to face the dwelling. This orientation also protects the door from possible future development to neighboring properties. Where possible the rear of the bunkers earth mound should be facing towards the at-risk fire direction. (i.e. - the door should be facing away from this fire direction).

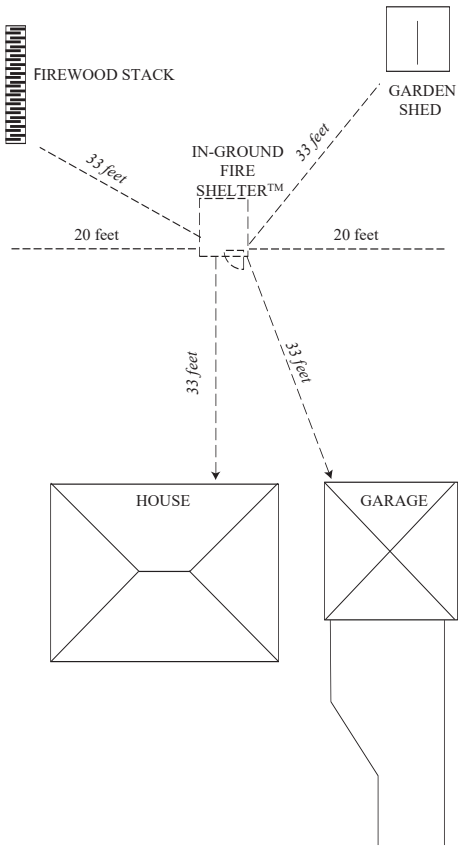
2. Side and rear boundary setback: The In-ground Fire Shelter access door must be located a minimum of 6.5 yards from a side or rear boundary with the access door oriented towards the dwelling. This setback offers protection against the possible placement by neighbors of firewood and other fuel loads on the boundary line adjacent to an installed Shelter and the doorway would be facing away from this potential threat.

3. Front and side street setback: The In-ground Fire Shelter access door must be located a minimum of 6.5 yards from the far boundary of a front street or 9 yards from the far boundary of a side street with the access door oriented toward the associated dwelling on the same allotment, or the front or side street.

4. Setback from outbuildings and other fuel loads: The In-ground Fire Shelter access door must be located a minimum of 10.0 metres from other outbuildings and fuel loads with the access door oriented towards the dwelling. (Example garden sheds, garages, wood piles, carports etc.). Radiant heat from these structures if ablaze could prove lethal. If this distance is not achievable these hazards must be removed or relocated.

In-Ground Fire Shelter™

Property spacing considerations. Measure the distance from the access door of the Shelter.



Site Excavation – Standard Shelter :

1. Locate any below underground services (i.e. gas lines, water pipes) before you excavate.
2. Mark out the area to be excavated, 8 feet x 10 feet.
   (Shelter dimensions are - 6 feet wide x 8 feet long.)
3. When marking out, align the Shelter so the access door is facing in the desired direction. Refer to points 1-7 on previous page.
4. Excavate to a depth of 1400 mm measured at the entry location. The joint between the top and the bottom of the Shelter at the access door opening must be at natural ground level.
5. Do not over excavate, the Shelter must be set on a solid, level base.
   Do not back fill any over excavation with loose earth, quarter minus fine rock is recommended to level the base of the excavation.

In-Ground Fire Shelter™ Installation procedure : Option 1 – Single unit.

Sections have been factory joined/sealed.

1. In-Ground Fire Shelters™ recommends using only experienced and licensed crane operators with appropriate equipment to lift and fit the Shelter into position.
2. Place the Shelter into the excavated and leveled site.
   Note : This is a fully factory finished unit and no additional items need fitting.

Option 2 – Top & Bottom sections installed on site separately.

1. In-Ground Fire Shelter™ recommends using only experienced and licensed crane operators with appropriate equipment to excavate, lift and fit the Shelter into position.
2. Remove all four metal travel straps located on two sides of the Shelter and separate the top half from the base.
3. Place the base of the Shelter into the excavated site.
4. Clean all loose dirt and dust off both top and bottom edges of the two sealing surfaces. Note: It is extremely important that this step is done correctly. These sealing surfaces must be thoroughly cleaned. An approved priming fluid is recommended on both surfaces before sealant is applied. (Sika Primer – 3N : read all manufactures instructions on packaging before use).
5. Apply two 15mm thick beads of approved concrete sealant (Sikaflex – Pro, one component polyurethane, concrete grey: read all manufactures instructions on packaging before use) 15mm apart around the perimeter of the Shelter base. Note: It is important to make sure there are no gaps or breaks in the beads of concrete sealant.
6. Carefully place the top section of the Shelter in place. The top must be placed in position in one action. The top section of the Shelter weighs 2500kg and should only be lifted and aligned by a licensed crane operator with the appropriate equipment. Note: 95% of In-Ground Fire Shelters™ are joined/sealed in the factory and transported as one unit to site.
7. Using a paint scraper or similar, wipe off all excess sealant from the inside and outside of the Shelter.
8. Refit all four metal travel straps located on each side of the Shelter.

1. When back filling around the perimeter of the Shelter, compact the fill by hand as you progress. Do not use heavy machinery for this process.

2. Mounding of the earth over the Shelter should be done carefully.

3. An earth cover to a depth of 300mm minimum and 500mm maximum is to be mounded over the top of the Shelter and then battered back to natural ground level. The ventilation shafts are to be 100mm above finished ground level.

4. It is recommended that a heavy clay type earth be use when mounding over the Shelter. Sand and loose soils are not recommended for the mounding as they will erode over time.

5. Compact the earth by hand as you proceed with the mounding, Note: Do not drive heavy machinery over or close to the edges of the Shelter during this process.
   It is recommended that a simple temporary fence be erected around the Shelter
   (approximately 1500mm back from all four sides of the Shelter) to limit the distance between any heavy machinery and the Shelter.

6. The mounding over the Shelter will need attention over time due to erosion. Always maintain the minimum and maximum earth cover (point 3 above) over the Shelter at all times. This remains the responsibility of the home owner.

Compacting by hand.

Avoid heavy machinery close to the edges of the Shelter.