

The objective of this study was to develop data on shelter concepts, costs and protective capabilities of shelter systems capable of deployment in urban and/or peripheral regions.

Two categories of shelter structures capable of providing protection against the effects of nuclear weapons were considered.

"Permanent" (single-purpose) structures requiring the skills, specialized equipment and communication and supply routes of the fabrication and construction industries. These include:

Reinforced concrete arch structures

Steel arch structures

Reinforced concrete rectangular structures

Timber rectangular structures

"Expedient" structures (fallout shelters) capable of being constructed within a relatively short period of time by unskilled or semiskilled labor using little or no specialized equipment.

The effort was primarily concerned with the first category described above. Each structure type was designed and costed for three shelter locations relative to the ground surface, six habitability options and four nuclear weapons environments characterized by fallout radiation alone, and 10, 20 and 30 psi free field overpressure and associated effects resulting from megaton range nuclear weapons.

A total of 864 shelter cost options are presented. Protective capabilities of this category of shelters as a function of a range of weapons environments was not evaluated. A discussion of existing analysis methods and data whereby this may be achieved is included.

Structures comprising the second category described above are existing concepts which were analyzed in this study in order to determine their structural integrity when subjected to blast effects of nuclear weapons. In addition to the above, the report contains costs for incorporating fallout and blast resistant shelters in basements of single family dwellings.