

## Relocating a Structure

**Relocating** an existing structure away from a flood-prone location prevents future flood damage to the structure and removes the people who use the building from harm's way. The procedure normally involves removing the building from its foundation, placing the structure on a wheeled vehicle, transporting it to a new location, and setting it on a new foundation.

### Applicability

Removing a structure from the flood hazard area is the most reliable technique for protecting a structure from future flood damage.

**Flood hazards:** Because the cost of relocating a building can be high, this technique is most appropriate for high hazard areas where continued occupancy is unsafe. Relocation should be considered if the site is susceptible to deep water, high velocities, ice or debris flow, flash flooding, or undercutting by erosion.

**Building condition:** A building must be in sound structural condition in order to be moved. Most types and sizes of structures can be relocated either as a unit or in segments. One-story wood-frame houses are usually the easiest to move, particularly if they are located over a crawl space or a basement. Houses constructed of brick, concrete, or masonry are also moveable, but usually with more difficulty and increased costs.

**Type of facility:** In addition to high hazard locations, from which relocation is desirable, there are also uses that are inappropriate for flood-prone areas and should be relocated to low risk sites. These include critical facilities that should remain operational during a flood, operations that store or use significant amounts of hazardous substances, and facilities that are difficult to evacuate (such as medical or nursing facilities).

### Costs

Cost is a major concern associated with building relocation. In addition to the cost of moving the structure are the expenses associated with purchase and preparation of the new site, installation of utilities, construction of a new foundation, and restoration of the old site. Arrangements must also be made for temporary housing and storage of belongings. If electrical, plumbing, heating, or other systems do not meet current building code requirements, they will need to be brought into compliance. If the structure has been substantially damaged by flooding, part of the costs may be eligible for Increased Cost of Compliance flood insurance coverage.

### The Relocation Process

- **Selecting the new site:** Selection of a new site for relocating a structure requires consideration of: natural hazards, utility connections, accessibility for site preparation, and the moving route between the old and new sites. Narrow roads, restrictive load capacities (of roads or bridges), low clearances (under bridges or power lines), or other restrictions along the route to the new site can complicate a relocation project. If an alternate route is not available, it may be necessary to move the structure in sections.
- **Permitting:** All permits required for construction at the new site, for moving the building, and for restoring the old site should be obtained before the relocation project begins.



- **Lifting the building:** If the building has a basement or crawlspace foundation, it is separated from the foundation and lifted on steel I-beams that pass through the foundation walls directly below the floor framing. The lifting is done with hydraulic jacks placed directly under the I-beams. Buildings with slab-on-grade foundations are lifted with the concrete floor slab attached, so the I-beams are inserted below the slab.
- **Preparing the new site:** Preparation of the new site includes: erosion control, grading/clearing (as needed), driveway construction, construction of a new foundation, and installation of utilities (electrical, gas, water, sewer, telephone, and cable).
- **Moving the building:** Trailer wheel sets are placed beneath the building and attached. The building is towed to the new site, positioned over the partially completed foundation, and supported on cribbing while the foundation is completed below it. The building is lowered onto the new foundation and construction completed (utility connections, backfilling, landscaping, etc.)
- **Restoring the old site:** Restoration of the abandoned site usually involves removal of the foundation and utilities, backfilling the basement, grading, and vegetative stabilization.

### Advantages and Disadvantages of Relocation

Advantages	Disadvantages
<ul style="list-style-type: none"> <li>● <b>Removing a building from a flood-prone location is the most reliable means of preventing future flood damage to the structure and contents and reducing personal risk to the occupants.</b></li> <li>● <b>Allows for a substantially damaged or improved structure to be brought into compliance with floodplain development standards.</b></li> <li>● Relocation techniques are well-known and qualified contractors are often readily available.</li> <li>● If the structure is removed from the regulated floodplain, the cost of flood insurance is reduced significantly and mandatory flood insurance requirements are eliminated.</li> </ul>	<ul style="list-style-type: none"> <li>● <b>Relocation is only possible if the building is structurally sound.</b></li> <li>● Cost may be prohibitive.</li> <li>● A new site must be located and purchased.</li> <li>● Disposition of the flood-prone lot must be addressed.</li> <li>● Additional costs may be incurred to bring the structure into compliance with current building codes for plumbing, electrical, and energy systems.</li> </ul>

