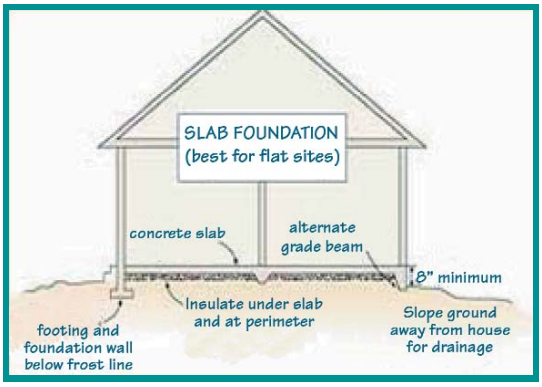
A Firm Foundation

It all begins at the bottom. The foundation holds up the rest of the house and affects its appearance and function. The three most common foundation types are slab, crawlspace, and basement. Let's take a close look at each.

Slab

The slab foundation is the simplest and often least expensive. It consists of a poured concrete slab. The exterior walls of the house receive support from a thickened, turned-down section of the slab, called a grade beam, or by a low foundation wall resting on a poured concrete footing.

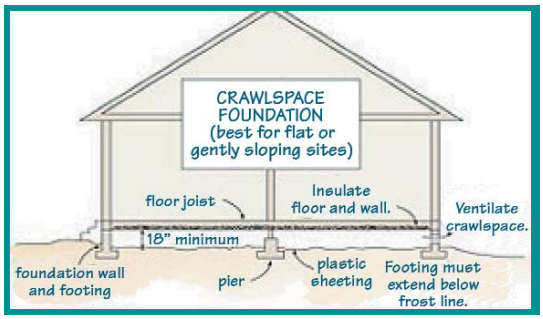


On a level site, the slab foundation requires minimum excavation and formwork. Because the slab functions as the floor surface, it eliminates the need for floor joists or decking. But this means that all plumbing, wiring, and ductwork rising through the floor must be in place before pouring the slab. It complicates remodeling because of the difficulty in moving pipes or wiring. Some types of finished floors, such as hardwood and carpet, may require the installation of a subfloor raised on wooden strips over the slab

To prevent a sinking appearance with a slab, the top should be above ground level. Many local building codes require an 8-inch minimum from the top to the ground. For a higher foundation, raise the slab on compacted fill dirt. A slab is usually not the best choice when the site slopes more than a few inches within the house walls. As with any type of foundation, the footing must be carefully sized to meet soil conditions on the site. And steel reinforcement may be needed to strengthen the footing or control cracking in the slab. The concrete used for footings should meet stress ratings called for by local codes and site soil conditions.

Crawlspace

A crawlspace foundation consists of a perimeter wall that supports a floor structure above the ground, with space to crawl under the floor. To help carry long floor spans and to support walls above, piers are placed at intervals within the crawlspace. You can install wiring, plumbing, and ductwork at any time during construction. And mechanical equipment, such as heating/air-conditioning units, can be located in the crawlspace.

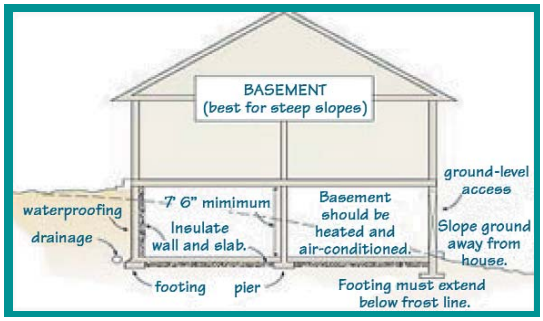


The crawlspace foundation can also be more easily constructed on a sloping site. For access, the minimum distance from the ground to the bottom of the floor joists should be 18 inches. Allow 24 inches minimum clearance for mechanical equipment in the crawlspace. To prevent moisture inside the house, cover the exposed earth with plastic sheeting and maintain proper ventilation. Check local building codes for specific requirements.

Basement

A basement is just a deep crawlspace. This foundation gives you usable living space below. For a steeply sloping site (one that drops off 6 feet or so from front to back), the basement can provide ground-level access on one side, while giving the look of a conventional foundation on the other. The foundation's walls can consist of stacked concrete block, poured concrete reinforced with steel, or even a plywood-covered stud wall of pressure- treated wood.

However, not all sloping sites lend themselves to a basement foundation. A site that slopes steeply up from front to back requires the basement-level windows and doors to be at the front. If you plan to use the basement as living space, allow for a sufficient ceiling height. The minimum required by many building codes is 7 1/2 feet, but this may



seem low. Often all that's needed to raise the ceiling to 8 feet is adding a few extra rows of concrete block when building the foundation wall. That also gives you headroom to clear any ductwork or plumbing below the joists.

For a usable basement you must keep water out. Install perforated drain pipes around the outside of the foundation to carry off below-ground water, and waterproof the foundation wall exterior with a plastic or roofing felt membrane applied with a mastic. Sizing the home's HVAC (heating, ventilating, air-conditioning) system to handle the extra load of the basement will remove excess moisture from the air and provide adequate ventilation.