

Natural building materials

The materials common to many types of natural building are clay and sand. When mixed with water and, usually, straw or other fibre, the mixture is known as cob or adobe. Other materials commonly used in natural building are: earth, wood, cordwood, timber frame, straw and rock. A wide variety of reused or recycled materials are common in natural building, including salvaged chunks of used concrete, tyres, discarded bottles and other recycled glass.

Major types of currently-popular natural building materials

Straw-bale

Straw-bale building is a practical and perhaps under utilized construction method. Straw is a viable building alternative, plentiful and inexpensive. Straw-bale buildings boast super insulated walls, simple construction, low costs, and the conversion of an agricultural byproduct into a valued building material. Properly constructed and maintained, the straw-bale walls, stucco exterior and plaster interior remain water proof, fire resistant, and pest free.

Adobe

One of the oldest building methods, adobe is simply clay and sand mixed with water. Sometimes chopped straw or other fibers are added for strength and a small amount of cement or asphalt emulsion for better weatherproofing. The mixture is then poured into molds and dried; usually adobe is shaped into bricks that can be stacked to form walls. Adobe colored with clay and polished with natural oil makes an attractive and resilient floor. To protect the walls and reduce maintenance, adobe buildings usually have large overhanging eaves and sizeable foundations. Adobe is not a good insulator; however insulation can be added preferably on the outside.

Cob

The term cob is used to describe a building system based on a mixture of clay, sand and straw. The construction uses no forms, bricks or wooden framework; it is built from the ground up. Cob is one of the easiest and least expensive building techniques available, though it is typically very labor-intensive. Cob's other great advantage is versatility; It can easily be shaped into any form.

Cob-like mixes are also used as plaster or filler in several methods of natural building, such as adobe, earth bags, timber frames, cordwood, and straw bales.

Cordwood

Cordwood construction uses short length pieces of debarked tree, laid up crosswise, with masonry or cob mixtures to build a wall. The cordwood, thus, becomes infill for the walls, usually between posts in a timber frame structure. Cordwood masonry construction provides a relatively high thermal mass, which makes the building easy to heat and cool.

Earth bag

This building method utilizes stacked polypropylene or natural-fibre (burlap) bags filled with earth. Although earth is a poor insulator, its growing popularity relates to its use of an abundant and readily available material (earth) and is potentially an inexpensive building technique.