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Title:

Foundations for Earthen Construction

Abstract:

Most homeowners have at least a basic idea of their home's structural system. Beams or rafters span across spaces and columns transfer axial loads from the roof or upper floors to the foundation. The foundation seems to be one structural system that is not well understood by homeowners. To some the foundation seems unnecessary and to others it is over emphasized and therefore costly.

The foundation serves three general purposes. The first purpose it serves is as an important link in the structural system. The purpose of any structural system is to transfer loads from the building to the ground. The foundation is the final step in that process. The foundation transfers vertical loads, such as dead, live and collateral loads to the ground and spreads them out. It also transfers horizontal loads, such as wind and seismic loads to the ground and can also hold the building down if needed for strong wind uplift. The second purpose the foundation serves is as a structural tie between other structural systems, much the way a ring on a wooden barrel holds the slats together. The third purpose of a foundation is more practical than structural. It serves as a thermal and moisture barrier between the cold damp ground and the building and also isolates the building from heave caused by the ground freezing and thawing. This paper will explain foundation options for earthen buildings through the use of case studies, from literature, and from practical experience so earthen homeowners and builders can make well informed foundation decisions.