

Earthen Architecture and Construction. Comparative Study of Materials, Products and Contemporary Techniques with Earth as a Construction Material



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ABSTRACT

The research was conducted on the assumption that the earth (unlike other contemporary building materials) has no technological evolution and that the corresponding construction techniques are obsolete. Is a “*dead material*” in ancient time, the first houses and cities were built with raw earth. Today, to build our homes we are using materials with high embodied energy, of difficult recycling, and sometimes even incorporate toxic elements. The construction industry is currently one of the main sectors that produce more waste and use more materials and energy. As is known, these resources are limited, and a demand reduction can be achieved through reuse, recycling and regeneration of materials used. This suggests that there are more than justified reasons to re-claim the simplicity and properties of the earth as a construction material. Since Craterre starts in the 80s, that we can call “the upgrade of earth building techniques” (see draft the *Domaine de la Terre*) have been produced many technological and architectural innovations among which stand the Austrian artist Martin Rauch and the Chilean architect Marcelo Cortes, for example. Hence the idea of developing a comparative study of the materials, products and contemporary techniques in earthen construction. The aim of this paper is to highlight the level where the earth construction is now days, being a not-trending material within the scope construction, discovering current trends about earth use in the architecture, now that the impact for building materials is becoming a very considerate approach for contemporary architects. Once seen historical cases, the paper teach us different buildings constructed on a ranging time from 2000 to 2012, organized according to “the wheel of earth building techniques” of Craterre. This analysis just examines techniques that break with tradition and that receive some new technical impulses. Each of these techniques has been classified for different topics: Improving performance; Efficiency aspect; Ecology; and Productivity. The main conclusion of this research is that, like other building materials, earth also has a technological evolution. That the earth “*is not a dead material*”. We also have to mention other aspects: the prohibitive costs and execution times of these techniques generate *false Earthen Architectures* in developed countries; The digital age is also giving birth to the creation of *new methods for earthen architecture*; It is possible to build with *zero*.

Keywords: Earthen architecture, earth building techniques, earth innovations, earth products.