The role of minerals in the cohesion and endurance of pre-Hispanic adobes. The case of the Great Pyramid of Cholula, Mexico

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Résumé

The Great Pyramid and the surrounding buildings in the archaeological site of Cholula in Puebla, central Mexico, were built with the adobe constructive system. This type of construction is part pf the past and present of the Mexican culture since the soil material used has proven to have the properties and mechanical resistance for construction. Since the adobes are built from natural soil, an abundant and therefore sustainable material, the analysis and study of the ancient constructive system increases our current comprehension of the structure and properties that our ancestors dominated in Mesoamerica.
In this work we present the mineralogical characterization of the Cholula adobes that were fabricated with volcanic soils that has semicrystalline and amorphous materials naturally occurring in this type of soil. We identify their role and importance on the cohesion and endurance of the adobes by relating it with the mechanical properties of the adobe and also of the constructive system designed by the Cholulteca people.

The results obtained denote the complex and profound knowledge required for earth construction and how technological studies of the past can help us improve the present constructive systems in the local region.

Mots-Clés: volcanic soils, amorphous materials, mechanical properties, adobes

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