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Considerations on the use of coal-ash and cassava peels on the engineering properties of compressed earth blocks

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Abstract

In Colombia, earth construction is economically the most efficient means to solve housing problem with the least demand of resources. Traditional earth construction techniques such as compressed earth blocks are experiencing a new popularity, taking into account that they constitute green building materials becoming economically competitive. In this study, preliminary results on testing the use of coal-ash and cassava peels in compressed earth blocks are shown. They were made using a clay-rich soil, without coal-ash and stabilized with coal-ash. The use of cassava peels as novel organic materials were also introduced in the preparation of the compressed earth blocks. Results show that the compressive and bending tests reveal that the compressed earth blocks stabilized with coal-ash produced the best results using a dose less than or equal to 5%. However, doses greater than 5% generate more flexible and fragile compressed earth blocks. Adding cassava peels to the clayed soil increases the required water content for extrusion (apparent plasticity).

Biography

Carlos Alberto Ríos Reyes is BSc in Geology from Universidad Industrial de Santander (Colombia), who has completed his MSc in Geology from Shimane University (Japan) in 1999 and PhD in Applied Sciences from University of Wolverhampton (United Kingdom) in 2008. He is the director of the Research Group in Basic and Applied Geology and the Microscopy Laboratory (PTG) from Universidad Industrial de Santander. He has published 12 papers in reputed international journals and 38 papers in national journals and serving as referee in several journals.