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## Recycling of cellulosic waste to prepare construction materials

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During the manufacturing of paper products, waste is generated that requires proper reuse or recycling, among which is the sludge from its WWTPs composed mainly of cellulosic waste. The sludge consists of organic fibers, inorganic materials, and about 60% water. Daily production and the limited capacity of sanitary landfills cause social and environmental problems. An alternative for its management is to incinerate the sludge, which is used as part of the cement, light aggregates in the construction industry, soil improver, cement elaboration or other minority applications, but most of it is deposited in landfills. In this project bricks were manufactured, which are made with sludge from the paper industry, lime, cement and construction waste (all in one 1/4 "to fines). As for the mud that was used to make the bricks, it had to be dried, due to the high humidity they had, since this could generate problems of excess water in the specimens. Physicochemical and microbiological tests were carried out on the sludge of the paper industry in order to corroborate that there is no risk in their handling. Subsequently, a mix design was developed to know which mix is ideal for brick making. The elaborated specimens were subjected to compression and absorption tests according to the NMX-C-411-ONNCCE-2013 (Building Industry – Masonry – Blocks and Masonry units for non-structural use – Specifications and test methods). From these tests, it was obtained that the best mixture for making bricks should have the following percentages:

## Recent Publications

1. M.N. Rojas-Valencia and E. Aquino Bolaños. (2016). "Sustainable adobe bricks with construction wastes. Waste and Resource Management". ICE Publishing, UK. Published online: December 12, 2016 Waste and Resource Management. November 2016. Volume 169(4) 158-165. Editor: ICE publishing. ISSN 1747-6526 | E-ISSN 1747-6534
2. M.N. Rojas-Valencia and E. Aquino Bolaños. (2017). "Recycling of construction wastes for manufacturing sustainable bricks". Proceedings of the Institution of Civil Engineers - Construction Materials. ISSN 1747-650X | E-ISSN 1747-6518 Indexed in Web of Science.
3. Armando Aguilar-Penagos, José Manuel Gómez-Soberón and María Neftalí Rojas- Valencia. (2017) "Physicochemical, Mineralogical and Microscopic Evaluation of Sustainable Bricks Manufactured with Construction Wastes". Applied sciences Appl. Sci. 2017, 7(10), 1012; Factor Impacto JCR =1.679. Indexed in Web of Science. Applied Sciences (ISSN 2076-3417; CODEN: ASPCC7). DOI
4. Ma. Neftalí Rojas-Valencia, Carolina Silva-Chávez, Juan Antonio Araiza-Aguilar, Hugo Alejandro Nájera-Aguilar. (2018). "Treatment of waste organic in markets and supermarkets with Solar Drying". Transylvanian Review. Vol XXVI, No. 27, April 2018 ISSN: 1221-1249 CENTER TRANSYLVANIAN STUDIES NASAUD ST, CLUJ-NAPOCA 400610, ROMANIA FACTOR DE IMPACTO: 0.045
5. María Neftalí Rojas-Valencia and Luciano Montiel Reyes. (2018). "Overview of the Situation of Artisanal Brick Manufacturers in Mexico and Other Latin American countries". Civil Eng. Res J. 2018; 3(3): 555613. DOI: 10.19080/CERJ.2018.03.555613. Mini Review. Volume 3 Issue 3 - February 2018(CERJ). Estates Unites Juniper Publishers ISSN: 2575-8950 Indexed in World Cat, Index Copernicus, Scientific Publications Index

## Biography

Hugo Alberto Quintero Navarro (Mexico City, 1992) has the profession of civil engineer, graduated from the Faculty of Engineering of the UNAM. He has a company dedicated to solid waste management, among the projects he has carried out are landfill designs, waste management plans, environmental impact studies and waste generation studies. Currently, he is studying his master's degree in environmental engineering in the area of solid waste.