

# **APPLICATION OF FOUNDRY BY-PRODUCT MATERIALS IN MANUFACTURE OF CONCRETE AND MASONRY PRODUCTS**

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## **ABSTRACT**

This research was undertaken to evaluate the performance of foundry by-products in concrete and masonry products. Two series of experiments were carried out. The first series of experiments were directed toward the use of an air-cooled foundry slag in concrete as a partial replacement of coarse aggregate. The second series of work involved the use of foundry sand as a partial replacement of fine aggregate for making masonry blocks and paving stones. The first series of tests were carried out to evaluate the performance characteristics of a foundry slag concrete under laboratory conditions. A reference concrete without foundry slag was proportioned to obtain 28-day compressive strength of 6000 psi. Two other mixtures containing 50 and 100% foundry slag as a replacement of regular aggregate were also proportioned. The 100% slag mixture showed compressive strength comparable to the reference mixture. However, the modulus of elasticity of concrete containing 100% slag was higher than the reference concrete.