

Manufacturing Commercial Bricks with Illinois Coal Fly Ash - a Program Overview

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ABSTRACT

Utilities burning Illinois bituminous coals annually discard about three million tons of Class F fly ash. The material is either stored in ponds at the generating plant, or trucked dry or wet to landfills. The chemical and mineralogical composition of this fly ash is similar to that of the clay and shale materials generally used to make fired bricks. Thus, using the fly ash in brick making could help utilities to reduce solid waste disposal problems, and reduce brick-makers' needs for mining raw materials. The overall goal of this research program is to develop the processes for making fired bricks containing Illinois Class F fly ash, and to assist Illinois brick-makers who want to produce fired bricks using fly ash as part of their raw materials.

With partial support from the Illinois Department of Commerce and Economic Opportunity, through the Illinois Clean Coal Institute, researchers working at the Illinois State Geological Survey and University of Illinois at Urbana-Champaign have successfully produced test bricks in the laboratory with both dry ash and ponded ash substituted for as much as 70 weight percent of the standard clay-shale raw materials. Most of the test bricks produced so far have met or exceeded ASTM specifications for severe weather applications. One brick plant has successfully fired several thousand bricks containing 40 volume percent fly ash. The scientists are currently working with three brick plants to conduct more commercial-scale production tests.