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Making non-fired brick using induction furnace and electric arc furnace steel slag

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Slag is a major waste product in steel industries. It is considered as hazardous waste that requires a large place for dumping. Induction furnace slag and electric arc furnace slag were used in this study for making bricks. Cement, lime, gypsum and water were used along with the crushed dried slag for making the bricks. Without firing, they were produced only by applying forming pressure of 1000 psi, 2000 psi and 3000 psi and cured under water for different time period of 7 days, 14 days and 28 days. Also the slag percentage was varied to 0%, 10%, 25% and 50%. Their compressive strength, water absorption, porosity and density were measured. The compressive strength of different compositions showed ten to twelve times higher result compared to the conventional burnt clay bricks. In comparison, electric arc furnace slag bricks revealed higher compressive strength than the induction furnace slag bricks. Water absorption percentage was also very low compared to conventional clay bricks. They showed results with high density with low porosity. Our main purpose in this research was to prevent environment pollution and utilize a waste product as a recycling element.

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