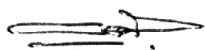


Sarawut Tassiri 2007: Study on the Properties of Mortar mixed with Fly Ash and Parawood Sawdust Ash. Master of Engineering (Civil Engineering), Major Field: Civil Engineering, Department of Civil Engineering. Thesis Advisor: Associate Professor Trakool Aramraks, Ph.D. 109 pages.

This thesis is to study the properties of mortar mixed with fly ash and parawood sawdust ash. The fly ash and parawood sawdust ash are the waste product from manufacturing industry. The study comprise of physical properties and chemical properties of fly ash and parawood sawdust ash, the characteristic of cement paste, and the characteristics of mortar replaced by 20 percent by weight of fly ash and added by 0 to 40 percent by weight of parawood sawdust ash. Parawood sawdust ash were pulverized by increasing 30 minutes pulverized time from zero to three hours for the purpose of pozzolan test. It was found from pozzolan test result that the compressive strength of mortar replaced by 20 percent by weight of parawood sawdust ash at 7 day and 28 day were 60 to 70 percent and 50 to 60 percent of mortar strength without replacement respectively for every pulverized time. Therefore, one hour pulverized parawood sawdust ash having 9.2 percent retaining weight on seive no.325 was used in this study.

The test result showed that the chemical composition of fly ash were SiO_2 (50.71%), Al_2O_3 (15.60%), Fe_2O_3 (9.41%) and CaO (16.62%) respectively and the chemical composition of parawood sawdust ash were SiO_2 (15.14%), Al_2O_3 (1.06%), Fe_2O_3 (0.56%) and CaO (32.34%) respectively. The physical shape of fly ash were flat, spherical with unpredictable dimensions. The physical shape of parawood sawdust ash showed irregular sizes with rough surface. These characteristics affected the increasing demand of water for normal consistency of cement paste. The normal consistency of cement paste increased in the same proportion as the increase of parawood sawdust ash. Initial setting time and final setting time were also increased as well. The unit weight of mortar and the weight loss of mortar by corrosion test decreased according to the increasing quantity of parawood sawdust ash. It was found that the compressive strength of mortar with 5 to 10 percent of parawood sawdust ash were greater than the strength of mortar with 15 to 40 percent parawood sawdust ash for all ages. Therefore the proportions of mortar replaced by 20 percent by weight of fly ash and added by 5 to 10 percent by weight of parawood sawdust ash were recommended.



Student's signature



Thesis Advisor's signature

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