

عنوان مقاله:

Evaluation of strength and durability performance of self-compacting mortar incorporation of nano- Al_2O_3 and fly ash

محل انتشار:

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تعداد صفحات اصل مقاله: 23

نویسندگان:

Bahareh Mehdizadeh Miayandehi - *Head of Department of Civil Engineering, University of Borhan Niroye Shomal, Rasht, Iran*

Seyed Mehdi Saeidi - *Department of Civil Engineering, Islamic Azad University of Bandaranzali, Iran*

Mohammadreza Asadi Bigzadmahaleh - *Master of geotechnical Engineering, Islamic Azad University of Bandaranzali, Iran*

Seyed Sahab Khoshgoftar Ziabari - *Mechanical Engineering, Islamic Azad University of Bandaranzali, Iran*

خلاصه مقاله:

This article presents a comprehensive evaluation of the performance of self-compacting mortar (SCM) incorporating Al_2O_3 nanoparticles (NA) and fly ash (FA). In this study the construction cost of SCMs was compared with normal concrete cost. Compressive and flexural strength of SCMs was also investigated to evaluate mechanical properties. The durability performance was assessed by means of water absorption, electrical resistivity and rapid chloride permeability tests. Also the SEM photos of samples were presented to indicate the microstructure of specimens. The results showed that although the SCMs containing NA increased content show good durability and mechanical performance (that in many tests except in water absorption test the results met and exceeded that of the control specimen), the improvement in results after addition of FA in SCMs is undeniable. The results also showed that specimen with 30% fly ash and 3% nano- Al_2O_3 (30FA3NA) for Portland cement replacement indicated a high degree of satisfaction for most parameters such as mechanical strength and durability properties

کلمات کلیدی:

Self-compacting mortar; Al durability. Al_2O_3 is responsible for a severe nanoparticles; Fly Ash; mechanical properties

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