

# Placement related Performance Evaluation of Fly Ash Concrete

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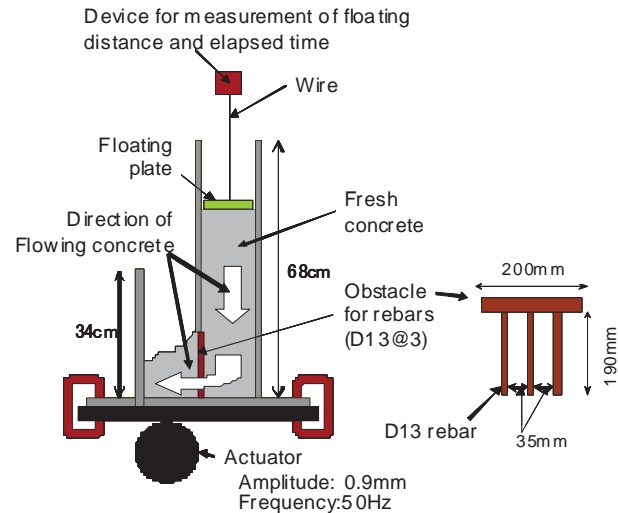


Fig.1 Overview of the box shaped-filling ability test on table vibrator

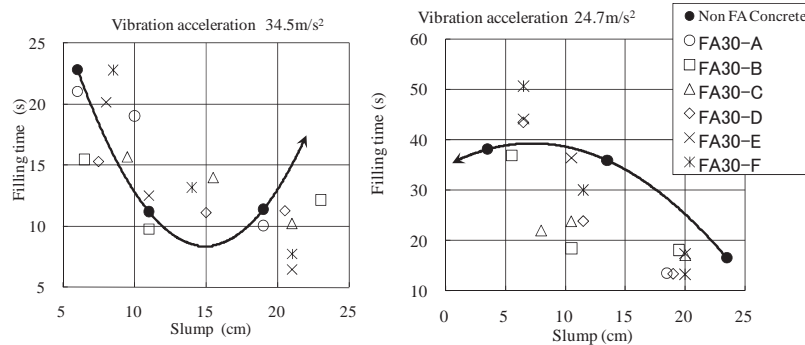


Fig.2 Effect of vibration acceleration on filling time of six fly ash concretes and normal concrete

## Content:

Fly ash brings about fair concrete placement ability to fresh concrete mixture, i.e., easy flow while construction and stability against segregation during and after works. Fly ash is an assembly of fine particles with spherical shape of the specific surface area more than 3000cm<sup>2</sup>/g.

My laboratory team paid their attention to the filling time acquired by the box shaped filling ability test (See Fig.1) on a table vibrator in view of workability. The time when the floating plate falls down to 20cm is used as the characteristic index. In engineering viewpoint, shorter filling time indicates fair compactability by vibrating works.

The summary of slump versus vibration filling time is shown in Fig.2. The vibration acceleration of 34.5m/s<sup>2</sup> was targeted for placing concrete into pre-cast units or forms of seismic resistant RC members having large amount of steel. Another case of 24.7m/s<sup>2</sup> is thought to be placing in normal sites.

As a matter of fact, the filling time of fly ash concrete was smaller than the normal one over 20cm of slump. It implies that the arching risk was more avoided for fly ash concrete. It is thought to be a mechanism why fly ash concrete exhibits higher workability especially in the case of high consistency.

Keywords: fly ash, fresh concrete, filling ability test, construction placement, slump, vibration, filling time

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