

Structural Behavior of Laterally Loaded Precast Foamed Concrete Sandwich Panel

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Abstract : Experimental and analytical studies were carried out to investigate the structural behavior of precast foamed concrete sandwich panels (PFCSP) of total number (6) as one-way action slab tested under lateral load. The details of the test setup and procedures were illustrated. The results obtained from the experimental tests were discussed which include the observation of cracking patterns and influence of aspect ratio (L/b). Analytical study of finite element analysis was implemented and degree of composite action of the test panels was also examined in both experimental and analytical studies. Result shows that crack patterns appeared in only one-direction, similar to reports on solid slabs, particularly when both concrete wythes act in a composite manner. Foamed concrete was briefly reviewed and experimental results were compared with the finite element analyses data which gives a reasonable degree of accuracy. Therefore, based on the results obtained, PFCSP slab can be used as an alternative to conventional flooring system.

Keywords : aspect ratio (L/b), finite element analyses (FEA), foamed concrete (FC), precast foamed concrete sandwich panel (PFCSP), ultimate flexural strength capacity

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