



PII S0008-8846(98)00012-X

DISCUSSION

DISCUSSION OF THE PAPER "AN EVALUATION OF CONTROLLED PERMEABILITY FORMWORK FOR LONG-TERM DURABILITY OF STRUCTURAL CONCRETE ELEMENTS" BY A.K. SURYAVANSHI AND R.N. SWAMY¹**D.J. Wilson**CIS Construction Products, Woodlands Road, Stanton,
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In their paper, the authors conclude that controlled permeability formwork (CPF) "is not fully effective in its intended purpose." This goes against the results of research at both commercial and university testing facilities throughout the world. Contrary to the impression given in this paper, numerous research projects have been carried out over the last 10 years and the findings have been extensively published. The results have all indicated significantly improved concrete durability to be derived from using CPF. Why then are the results of this work so at variance with those obtained by other researchers?

Reading the "test specimen preparation," section of the paper reveals why the results of this work should be considered invalid. The procedures for casting any concrete require that poker vibrators be kept 75 to 100 mm from the formwork (Ref: BCA, Concrete on Site). This is doubly important for a CPF liner and manufacturers draw particular attention to this fact in their technical guidelines. These requirements have been ignored by the researchers (a 50-mm layer was compacted, the result of which would be the clogging up of the liner with cement fines and minimal drainage of excess water). This elementary error at the casting stage meant that the subsequent test regime, although extensive, was time wasted. Under these circumstances, the predicted durability improvements would be marginal and that is the outcome of the tests. The results presented in this paper therefore have no validity.

Other minor points in the paper are also inaccurate. Not all types of CPF require the use of predrilled formwork. The relief of form pressures by using CPF is not proven and is not the purpose of most types of liner. Also, long-term natural exposure tests have been applied to CPF concrete. These have shown that after 3 years exposure to a salt-laden marine environment, the level of chlorides in CPF concrete is significantly reduced for both PC and PC/GGBS mixes.

Their conclusion that CPF "is not fully effective in generating a dense impermeable concrete" is completely unsupported. Even basic research by undergraduates has confirmed that when used correctly, CPF improves concrete durability to a significant degree. These benefits accrue for vertical, inclined and soffit concrete. It behooves those involved in academic research to use correct procedures before casting aspersions on a technique which offers many benefits to concrete.

¹Cem. Concr. Res. 27, 1047-1060 (1997).