

Discussion on paper published in
Magazine of Concrete Research
1991, 43, June, 93–104

The effects of permeable formwork on the surface properties of concrete

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Contribution by H. Roper

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One severe problem which I believe may arise in the use of permeable formwork has not been considered in the Paper. This occurs when a concrete is designed for ease of placing in walls and the water–cement ratio is adjusted for free-water escape using CPF. If that same concrete is placed in a slab which is continuous with the wall, unanticipated effects may result. Unless the supported section is thin, it will be noted that, even if the soffit surface is allowed to drain, there will be an excessive amount of water accumulation within the upper fibres of the slab. This may lead to excessive finishing times, high shrinkage and cracking of that section. It is suggested that some warning of this type of problem be given to contractors and concrete designers using CPF.

Reply by the Authors

The Authors are grateful for Professor Roper's comments and would agree that excessive water content in the upper

layers of slabs will indeed lead to practical difficulties and a poor-quality concrete surface. However, we feel that the use of CPF in the situation described will not result in such problems.

The use of CPF confers many benefits in terms of improved surface properties; these result primarily from the reduction in the near-surface water–cement ratio produced by the filtering action of the formwork liner material. It is not necessary to adjust the original water–cement ratio of the concrete to allow for the escape of water through the fabric. Indeed, to do so would negate the benefits of using CPF. Concrete placed in CPF formwork should be proportioned in the same way as concrete to be placed in more conventional formwork. The loss of water from the surface of the concrete will then enhance the quality of the surface relative to the bulk properties of the concrete.

We hope this clarifies any misunderstanding resulting from our Paper.