Curing Concrete

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To my family
This is why we took as many photos of concrete
as mountains on our road trips.

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Preface

Students are taught that curing concrete is important, but in practice curing is often a low priority on the construction site. This is most likely because the benefits of the cost of curing are not immediately apparent, and the consequences of poor curing may only appear later in the life of the structure.

The fundamental principle behind the curing of concrete is simple: The mixture should be kept warm and wet for several days after placement in order to achieve the properties needed. This is because cement hydration is a relatively slow process that requires sufficient water available to continue. Drying normally occurs at the surface, meaning that poor curing affects the surface by reducing resistance to the environment and abrasion; yet this is precisely the zone that is exposed to bad weather and tires.

Demands on modern concrete are increasing, while raw materials are changing and budgets are shrinking, together requiring that closer attention is needed to ensure that the best value is obtained from the cementitious materials in a mixture.

The aim of this book is to help those involved with working in concrete construction understand why curing is important, that it is indeed possible and worth the effort, and to show how it can best be carried out.

The discussion includes the fundamentals behind hydration and why curing is needed; how properties are affected; and how curing can be effectively specified, provided, and measured. The final chapter includes a review of published work evaluating curing in real-world structures.