

DEVELOPMENT OF A SIMPLE NON-DESTRUCTIVE EVALUATION METHOD FOR PERMEABILITY OF COVER CONCRETE BY SUPPLYING SMALL AMOUNTS OF WATER ONTO CONCRETE SURFACE

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The permeability of cover concrete has a considerable effect on the durability of reinforced concrete structures. Non-destructive methods of evaluating the mass transfer resistance of cover concrete have become increasingly important in recent years and various non-destructive testing methods for air permeability and water permeability have been proposed. However, since with almost all of these methods professional expertise is required to interpret the results and a power supply is required to operate the test equipment, there are some problems with deploying them, such as the need for prior preparations on site. In this study, we have been developing a new evaluation method that is simple and easily applicable to the inspection of concrete structures. Specifically, small amounts of water are intentionally supplied to the drying surface of hardened concrete. Permeability is evaluated by obtaining information such as the water fugacity property on the concrete surface in the wet condition. Using this method of non-destructive evaluation, it is possible that easy evaluations of the permeability of cover concrete could be carried out using simple equipment that supplies a small amount of water and a battery-powered hand-held device. This will enable widespread evaluation of cover concrete permeability, leading to improved durability of reinforced concrete structures.

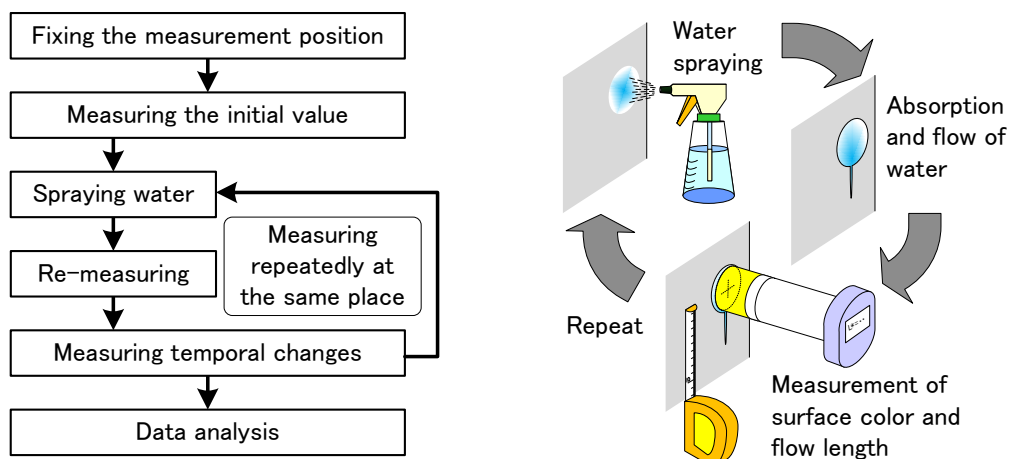


Figure 1 Measurement procedures



Picture 1 Changes in the surface by water supplying