

# **ECONOMICAL SELF-CONSOLIDATING CONCRETE FOR THE WISCONSIN CONCRETE INDUSTRY**

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## **ABSTRACT**

Self-consolidating concrete (SCC) is a relatively new type of concrete that does not require external or internal vibration or rodding, but flows and becomes compacted under its self-weight. The use of SCC can reduce the overall cost of concrete construction, increase worker safety, and speed construction. This project was conducted to provide the ready-mixed concrete and precast/prestressed concrete producers with economical SCC mixture proportions achieved by judicious use of fly ash and quarry fines and using minimum amounts of expensive superplasticizer and viscosity-modifying admixture

The objective of this project was to provide economical mixture proportions and test data for self-consolidating concrete (SCC) in order to reduce the cost and improve the quality of concrete construction in Wisconsin. The focus of this project was to transfer the technology of economical SCC production using by-product materials to concrete producers and manufacturers in Wisconsin through prototype-scale manufacturing, testing, and evaluation of economical SCC mixtures at a commercial manufacturing facility. In order to achieve economical SCC mixtures, two by-product materials were selected based on previous experience: fly ash meeting the requirements of ASTM C 618 Class C, and quarry fines obtained from the process of crushing limestone in Wisconsin.