EcoSmart™ Concrete Technology: Enabling Construction Professionals to Use High Volume Fly Ash Concrete in Building and Infrastructure Projects

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ABSTRACT

EcoSmart™ concrete technology aims to reduce the greenhouse gas (GHG) emissions associated with the production of Portland cement for use in concrete construction. In EcoSmart concrete, this is achieved by partially replacing Portland cement with an optimum amount of supplementary cementing material(s) (SCMs), such as fly ash from coal fired power plants, while maintaining or improving cost, concrete performance, and constructability. EcoSmart concrete is not a proprietary technology or a rigid formula; rather, it is a customer-friendly way of describing concrete that is optimized to achieve the least environmental impact with no adverse effect on construction schedule and costs, or on the quality and performance of the concrete. Through knowledge management and demonstration projects, the EcoSmart Foundation (EcoSmart) is enabling the building industry to innovate and adopt new technologies that will reduce GHG emissions in a manner that is ecologically and economically smart. The presentation provides insights into the process and rationale for implementing EcoSmart concrete in projects, and the successes and challenges experienced in a variety of case study projects. The role of EcoSmart is also addressed as it relates to connecting concrete suppliers, owners and developers, structural designers, and concrete contractors to use EcoSmart concrete in construction projects, as well as incorporating EcoSmart concrete into standards, guidelines and specifications. Additional information about the results of EcoSmart case studies and technical reports, including links to technical experts, may be found in the knowledge base at www.ecosmart.ca.

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