



Technologies for Low Carbon and Lean Construction

🏠 Location: [YouTube TLC Channel](#)
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Utilization of Off-Spec Fly Ash for Low-Carbon Concrete



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Abstract:

In line with the UN's climate change forecasts to limit global warming to less than 2°C (compared with the year 1850), the concrete industry has adopted an ambitious goal of cutting its CO₂ emissions by 50% by 2050. One strategy toward this goal is high volume portland clinker substitution by SCMs. At the same time, shifting electricity production from coal to natural gas and renewables has resulted in a shortage of conventional fly ash for use in concrete. To expand the volume of available SCMs, this talk presents research on characterization, beneficiation, and performance evaluation of high sulfur and high alkali “off-spec” fly ashes resulting from comingling of fly ash with flue gas desulfurization (FGD) products. It is shown that fly ash's SO₃ content by itself cannot determine its performance; rather, the mineralogy of sulfur (e.g., CaSO₄, CaSO₃, Na₂SO₄) is very significant. While high sulfur fly ash may result in setting delays and volumetric expansion, high alkali fly ash can cause flash setting and ASR risk. Mechanisms and beneficiation strategies to mitigate these effects are discussed.

Registration:

To register for the webinar please [click here](#).

The webinar will be live streamed on our YouTube Channel – [Link](#)