

**CONTROLLED LOW STRENGTH MATERIAL (CLSM) PRODUCED WITH  
HIGH-LIME FLY ASH**

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**ABSTRACT**

This paper presents results of research performed to identify optimum mix proportions for production of Controlled Low Strength Material (CLSM) with high fly ash content. CLSM is defined by the ACI Committee 229 as materials having compressive strength of less than 1,200 psi. The fly ash used in this study met the requirements of ASTM C 618 for Class C material.

Tests were carried out on concretes designed to have 500 - 1,500 psi compressive strength at the 28-day age where fly ash was proportioned to cement on a 2:1 weight basis. Both low-slump ( $1\text{-}1/4 \pm 1/2$  inch) and high-slump ( $7\text{-}1/2 \pm 2$  inch) concretes were produced. Compressive strengths at 28 days was found to range from 490 to 1,650 psi. Construction experience and other planned applications are also discussed.