

CONTROLLED LOW STRENGTH MATERIALS (CLSM) STATE-OF-THE-ART

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ABSTRACT

This paper presents a summary of innovations and the state-of-the-art of Controlled Low Strength Materials (CLSM) in North America. CLSM is defined as a self-compacted, cementitious material used primarily as a backfill in lieu of compacted fill which results in a compressive strength of 1200 psi (8 Mpa) or less. CLSM encompasses a whole family of low strength fill materials and has been known by many other names.

The American Concrete Institute Committee 229 published a report in 1994 that has been very helpful in communication information on material properties, testing, applications, and experience with these materials (10). The American Society of Testing Materials (ASTM) has also issued four provisional standards on testing CLSM (16-19).

Recent innovations include the use of recycled materials such as glass and foundry sand, increased air content, color for rapid identification of buried utilities, blended coal ash, and non-spec./off-spec. aggregates and fly ash. This paper describes the advantages of CLSM use as well as some "lessons learned" in practice.

CLSM is being frequently used as a backfill and void filling material in many locations across the U.S. and Canada. CLSM's predictable engineering properties and labor saving attributes are making it the material of choice for many applications. CLSM provides the engineer and constructor with another tool to help solve the many challenges of constructing and maintaining today's civil infrastructure.