

# MASONRY

*Materials, Testing, and Applications*

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# ***Masonry: Materials, Testing, and Applications***

*J. H. Brisch, R. L. Nelson, and H. L. Francis, Editors*

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## Foreword

This publication, *Masonry: Materials, Testing, and Applications*, contains papers presented at the Symposium on Masonry: Materials, Testing, and Applications presented 8 December, 1998 in Nashville, TN. The symposium was sponsored by Committees C-7 on Lime, C-1 on Cement, C-12 on Mortars and Grouts for Unit Masonry, and C-15 on Manufactured Masonry Units.

The symposium was chaired by Joseph H. Brisch, with Rockwell Lime Company, Manitowoc, WI; Robert L. Nelson, of Robert L. Nelson & Associates, Schaumburg, IL; and Harry L. Francis, of Elliston, VA. Each of these men served as editor of this resulting publication.

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# Overview

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Masonry is one of mankind's oldest arts. The construction of shelters, buildings, castles, and fortresses has been the life work of untold numbers of artists, architects, masons, plasterers, and laborers. Today we marvel at the ancient structures still standing after hundreds and thousands of years. Works such as the Great Wall of China, The Roman Coliseum, the cathedrals of Europe, and masonry bridges still in use after hundreds of years of wear and tear, encourage us to better understand the art, the mechanics, and the chemistries involved in building and maintaining these structures.

In this seminar, and the resulting publication *Masonry: Materials, Testing and Applications*, ASTM STP 1356, the authors attempt to convey their experiences towards a better understanding of the principles and mechanics involved in designing and building masonry structures. The papers presented do just that.

Beginning with Session I, Materials, the presenters review findings on new additives and materials that are being effectively used to beneficially modify traditional mortars; explain the properties and benefits of Autoclave Aerated Concrete—a relatively new material now available in the United States; an economic overview of the use of brick in building; and the use of X-Ray Fluorescence in the analysis and comparison of limestones and Dolomite.

In Session II, Testing (A), the presenters review methods of evaluating new unbonded capping systems for concrete masonry units as well as quantifying out-of-plane shear strength values for masonry walls. In Session III, Testing (B), the presenters evaluate the use of ruggedness testing to develop an interlaboratory testing protocol for various types of cement mortars, and discuss the development of an unbonded capping system for clay masonry prisms. In Session IV, Testing (C), the presenters explore the properties of brick and masonry veneer structures in the papers "The Importance of Testing to Evaluate the Effect Masonry Walls Have on High-Rise Building Stiffness" and "In-Situ Evaluation of Pre-Compressed Brick Veneer Using the Flatjack Technique." In Session V, Applications, the presenters summarized the real world application of the proceeding materials and testing presentations by examining actual projects in renovation of existing masonry loft buildings for residential use, and a new measurement system for detecting the degree of grout fill in cement masonry units.

The presentation sessions were followed by a review of the Alan H. Yorkdale Memorial Award, including a review of past recipients by the Yorkdale Committee, and presentation of the 1998 Alan H. Yorkdale Memorial Award by R. H. Brown, chairman of the Award Committee, to Jason Thompson for his presentation of *Tension Lapped Splices in Reinforced Concrete Masonry*.

The Joint Committees of C-1 on Cement; C-7 on Lime; C-12 on Mortars and Grouts for Unit Masonry; C-15 on Manufactured Masonry Units, and the symposium co-chairmen welcome you to review the presentations and profit from the information presented by the participants. The effective and economical use of masonry has a wonderful historical background, and a promising future in the building of structures and protection of the world's citizens. To be effective, we must learn and pass on to our future generations the art of evaluating and utilizing these materials.

Joint Symposium committee members are as follows: Donald M. Taubert and Tim Conway (C-1); Joseph H. Brisch and Harry L. Francis (C-7); Bruce S. Kaskel (C-12); Dianne B. Throop and John H. Matthys (C-15).

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