



Masonry:

OPPORTUNITIES
for the
21st CENTURY

editors

DIANE THROOP
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Diane Throop, Richard E. Klingner, editors

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Foreword

The Tenth Symposium on *Masonry: Opportunities for the 21st Century* was held in Salt Lake City Utah on 25 June 2002. The symposium was sponsored by ASTM Committees C-15 Manufactured Masonry Units, C-12 Mortars and Grouts for Unit Masonry, C-01 Cement and C-07 Lime. The symposium co-chairmen of this publication were Diane Throop and Richard E. Klingner.

Dedication

Dedicated to all those who went before and made these 21st Century Opportunities possible.

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Overview

These *Proceedings* are the tenth in a series of ASTM symposia on masonry that began in 1974. Sponsored jointly by ASTM Committee C-1 on Cement, C-7 on Lime, C-12 on Mortars for Unit Masonry, and C-15 on Manufactured Masonry Units, the symposia provide a forum for the exchange of ideas, information and practical experience in multiple areas related to masonry. This resulting STP includes papers presented orally at the June 25, 2002 symposium held in Salt Lake City, Utah, and two additional papers that the Joint Symposium Committee decided were deserving of publication, but which could not be presented due to time constraints.

The title, "*Masonry: Opportunities for the 21st Century*," was chosen to reflect the forward momentum of the sponsoring masonry committees and their commitment to grasping the opportunities offered by the new millennium. It was the committees' desire to elicit presentations and papers on the historical evolution of masonry concepts that are valued today, and also on current research, new ideas, products, and applications involving masonry.

Following the theme of progress, the Symposium, and this symposium volume, addresses historical, current, and predicted masonry issues, ranging from studies of the behavior of historic masonry, through basic research into the behavior and potential application of innovative masonry materials. Papers cover state-of-the-art knowledge regarding historic structures, material testing, evaluation techniques, and new products and systems.

The papers contained in this symposium volume represent the work of 34 authors and co-authors; they were peer-reviewed by approximately 60 members of ASTM Committees C-1, C-7, C-12, and C-15. The Joint Symposium Committee was made up of representatives of the four sponsoring committees, with C-15 acting as the lead committee for the 2002 Symposium and this symposium volume. Committee members were Diane Throop and Richard Klingner—co-chairs and representatives of Committee C-15; Joseph Brisch and Bruce Kaskel, representing Committee C-12; Jim Nicholas and Paul Owen, representing Committee C-1; and Michael Tate and Robert Nelson, representing Committee C-7. Finally, many ASTM staff members aided the Joint Committee in conducting the Symposium and preparing this symposium volume. We thank the authors, reviewers, Symposium attendees, sponsoring committee members, and ASTM staff for their work to enhance the success of this Symposium and the corresponding symposium volume.

This volume was dedicated to those who have gone before and made these opportunities possible. We thank them for their work and dedication to masonry, recognizing their role in providing the foundation for much of the work presented in this volume.

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