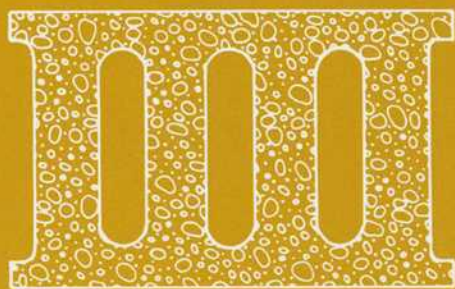


Masonry:

MATERIALS,
DESIGN,
CONSTRUCTION,
& MAINTENANCE



Harry A. Harris, *editor*

ASTM
STP 992

STP 992

Masonry: Materials, Design, Construction, and Maintenance

Harry A. Harris, editor



ASTM
1916 Race Street
Philadelphia, PA 19103

Library of Congress Cataloging-in-Publication Data

Masonry: materials, design, construction, and maintenance/Harry A. Harris, editor.
(STP; 992)

Papers from a symposium held in New Orleans, LA, 2 Dec. 1986 and sponsored by ASTM Committees C-7 on Lime, C-12 on Mortars for Unit Masonry, and C-15 on Manufactured Masonry Units.

Includes bibliographies and indexes.

"ASTM publication code number (PCN) 04-992000-07."

ISBN 0-8031-1168-1

1. Masonry—Congresses. I. Harris, Harry A. II. ASTM Committee C-7 on Lime. III. ASTM Committee C-12 on Mortars for Unit Masonry. IV. ASTM Committee C-15 on Manufactured Masonry Units. V. Series: ASTM special technical publication; 992.

TA670.M378 1988

693.1—dc19

88-15446

CIP

Copyright © by AMERICAN SOCIETY FOR TESTING AND MATERIALS 1988

NOTE

The Society is not responsible, as a body,
for the statements and opinions
advanced in this publication.

Peer Review Policy

Each paper published in this volume was evaluated by three peer reviewers. The authors addressed all of the reviewers' comments to the satisfaction of both the technical editor(s) and the ASTM Committee on Publications.

The quality of the papers in this publication reflects not only the obvious efforts of the authors and the technical editor(s), but also the work of these peer reviewers. The ASTM Committee on Publications acknowledges with appreciation their dedication and contribution of time and effort on behalf of ASTM.

Printed in Baltimore, MD

July 1988

Foreword

This publication, *Masonry: Materials, Design, Construction, and Maintenance*, contains papers presented at the symposium of the same name held in New Orleans, LA on 2 Dec. 1986. The symposium was sponsored by ASTM Committees C-7 on Lime, C-12 on Mortars for Unit Masonry, and C-15 on Manufactured Masonry Units. Harry A. Harris, Ash Grove Cement Co., presided as symposium chairman and was editor of this publication.

Contents

Overview	1
MATERIALS	
Inadequacy of Property Specifications in ASTM C 270—G. C. ROBINSON AND R. H. BROWN	7
Shear Strength of Masonry Piers Under Cyclic Loading—L. S. P. JOHAL AND E. D. ANDERSON	18
Investigation of Masonry Bond and Surface Profile of Brick—J. W. RIBAR AND V. S. DUBOVY	33
DESIGN	
Preconstruction Brick Veneer Evaluation Testing—D. C. RATHS	41
Problems and Solutions to Masonry Buildings—R. M. GENSERT AND W. C. BRETNALL Discussion	57 91
Influence of Tie Flexibility, Relative Length, and End-Boundary Condition on Brick Veneer-Metal Stud Flexural Bond Stress—I. R. CHIN, N. V. KROGSTAD, AND C. B. MONK, JR.	96
Analysis and Test of a Torsional Sensitive C-Shaped Prefabricated Brick Spandrel Panel—R. C. ARNOLD, L. J. DONOVILLE, N. V. KROGSTAD, AND C. B. MONK, JR.	118
Test of Model Masonry Single Pier Under Dynamic Shaking and Quasistatic Cyclic Loading—H.-L. CHEN AND S. P. SHAH	145
CONSTRUCTION	
Statistical Primer for Brick Masonry—C. T. GRIMM	169
An Investigation of an Extended Plastic Life Mortar—J. H. MATTHEYS, J. T. HOUSTON, AND A. DEGHANI	193
The Effectiveness of Waterproofing Coatings, Surface Grouting, and Tuckpointing on a Specific Project—W. B. CONEY AND J. G. STOCKBRIDGE	220

MAINTENANCE

Diagnosis of Terra-Cotta Glaze Spalling—S. E. THOMASEN AND C. L. SEARLS	227
In-Situ Evaluation of Compressive Stresses—D. MANMOHAN, R. L. SCHWEIN, AND L. A. WYLLIE, JR.	237
Restoration of the John J. Glessner House—T. SOURLIS	251
Masonry Cracks: A Review of the Literature—C. T. GRIMM	257
Indexes	281

ISBN 0-8031-1168-1