AASHTO-AGC-ARTBA Joint Committee

Task Force 37 Report

Guide Specifications for Shotcrete Repair of Highway Bridges

February 1998



This is a preview. Click here to purchase the full publication.

AASHTO-AGC-ARTBA Joint Committee Subcommittee on Materials Task Force 37 Report

Guide Specifications for Shotcrete Repair of Highway Bridges

February 1998

This is a preview. Click here to purchase the full publication.

This is a preview. Click here to purchase the full publication.

.

Introduction

This document is disseminated upon the sponsorship of the Joint Committee of the American Association of State Highway and Transportation Officials, the Associated General Contractors of America and the American Road and Transportation Builders Association (the Joint AASHTO-AGC-ARTBA Committee) in the interest of information exchange, based on the combined technical expertise of the authors. As such, the opinions and conclusions implied or expressed herein do not necessarily reflect the official views or policies of the Joint Committee or its member organizations.

This report was approved for publication by the three member organizations comprising the Joint Committee and was published on behalf of the Joint Committee by AASHTO.

All rights to this report are reserved to the Joint Committee. However, permission to make copies thereof can be obtained with the understanding that credit will be given to the Joint Committee. For permission to make copies, write to AASHTO at the following address:

> American Association of State Highway and Transportation Officials 444 North Capitol St., N.W., Suite 249 Washington, D.C. 20001

> > Fax (202) 624-5806

February 1998

Preface

This Guide Specification is adapted from the Recommended Practice for Shotcrete Repair of Highway Bridges which was prepared by Dr. D. R. Morgan, Professional Engineer of HBT AGRA Limited, Vancouver, B.C., Canada, under the auspices of the Canadian Strategic Highway Research Program (C-SHRP) study titled *Durability of Shotcrete Rehabilitation Treatments of Bridges*. C-SHRP is a program of the Transportation Association of Canada (TAC). The guidance, review and critical comment of the following C-SHRP Project Committee on Shotcrete Repair of Bridges' members in preparation of the original document is gratefully acknowledged:

Dr. David Manning, Professional Engineer, Ministry of Transportation, Ontario

Mr. Paul Carter, Professional Engineer, Alberta Transportation and Utilities

Mr. Daniel Vizina, Ing., Transports Québec

Mr. Greg Williams, Professional Engineer, C-SHRP National Coordinator

The contributions of Mr. W. S. Langley, Professional Engineer, of W. S. Langley and Associates Limited and Dr. Doug Hooton, Professional Engineer, of John Emery Geotechnical Engineering Limited to the initial C-SHRP study are also gratefully acknowledged.

Permission to adapt the document was provided under Cooperative Agreement DTFH61-95-X-00005 between the Federal Highway Administration and the Transportation Association of Canada. The original document was revised and adapted for use in the U.S. by Joint Task Force 37, Shotcrete Repair of Highway Bridges.

Joint Task Force 37 Shotcrete Repair of Highway Bridges

Chairman:	Gerald White, North Carolina DOT, Raleigh, NC
Secretary:	Bruce Johnson, Federal Highway Administration, Salem, OR
Members:	Jim Asher, Fibermesh Company, San Antonio, TX
	Ken Boedecker, W. R. Grace and Company, Charleston, SC
	Jim Dikeou, ACI, Detroit, MI
	Mahmoud Elnahal, Virginia DOT, Richmond, VA
	Steven H. Gebler, Construction Technology Laboratories, Inc., Skokie, IL
	George Yoggy, Master Builders Technologies, Cleveland, OH
	Leon Glassgold, Masonry Resurfacing and Construction Company, Baltimore, MD
	Frank Nelson, Oregon DOT, Salem, OR
	Christy Philipp, California DOT, Sacramento, CA
	Dan Thomas, California DOT, Sacramento, CA
	John Simmons, Pneumatic Concrete Inc., Birmingham, AL
	Peter C. Tatnall, Bekaert Corporation, Marietta, GA
	Larry Totten, Johnson Western Gunite Company, San Leandro, CA
	Curt White, Coastal Gunite Construction Company, Cambridge, MD

z

.

This is a preview. Click here to purchase the full publication.

.

.

.

.

Guide Specifications for Shotcrete Repair of Highway Bridges Table of Contents

Introduction		1
1.0	Background	1
2.0	Specifier's Guide	3
3.0	Definitions	4
4.0	Design Considerations	6
5.0	Checklist	9
Dry-Mix Sho	otcrete Repair of Highway Bridges	1
1.0	General Description and Requirements.	1
2.0	Submittals	3
3.0	Reference Documents	4
4.0	Materials	6
5.0	Shotcrete Proportioning	8
6.0	Supply and Equipment	0
7.0	Preparation for Shotcreting 1	3
8.0	Quality Assurance and Quality Control Testing	7
9.0	Safety and Clean-Up 2	1
10.0	Shotcrete Application and Finishing 22	2
11.0	Curing and Protection	3
12.0	Shotcrete Acceptance and Repair 2	7
13.0) Measurement	9
Wet-Mix Sh	otcrete Repair of Highway Bridges	1
1.0	General Description and Requirements.	1
2.0	Submittals	3
3.0	Reference Documents	4

4.0	Materials	6
5.0	Shotcrete Proportioning	9
6.0	Supply and Equipment 1	1
7.0	Preparation for Shotcreting 1	4
8.0	Quality Assurance and Quality Control Testing 1	8
9.0	Safety and Clean-Up 2	2
10.0	Shotcrete Application and Finishing 2	3
11.0	Curing and Protection	7
12.0	Shotcrete Acceptance and Repair	8
13.0	Measurement	0
Commentar	у	1
1.0	General Description and Requirements	1
2.0	Submittals	3
3.0	Reference Documents	4
4.0	Materials	4
5.0	Shotcrete Proportioning 1	2
6.0	Supply and Equipment 1	7
7.0	Preparation for Shotcreting 2	1
8.0	Quality Assurance and Quality Control Testing	6
9.0	Safety and Clean-Up	0
10.0	O Shotcrete Application and Finishing 3	0
11.(Curing and Protection	2
12.0	0 Shotcrete Acceptance and Repair 3	3
References	s 3	4

Introduction to the Joint AASHTO-AGC-ARTBA Guide Specifications for

Shotcrete Repair of Highway Bridges

1.0 BACKGROUND This Guide Specification is adapted from the Recommended Practice for Shotcrete Repair of Highway Bridges which was prepared by Dr. D. R. Morgan, Professional Engineer of HBT AGRA Limited, Vancouver, B.C., Canada, under the auspices of the Canadian Strategic Highway Research Program (C-SHRP) study titled *Durability of Shotcrete Rehabilitation Treatments of Bridges.* C-SHRP is a program of the Transportation Association of Canada (TAC). The guidance, review and critical comment of the following C-SHRP Project Committee on Shotcrete Repair of Bridges' members in preparation of the original document is gratefully acknowledged:

Dr. David Manning, Professional Engineer, Ministry of Transportation, Ontario

Mr. Paul Carter, Professional Engineer, Alberta Transportation and Utilities

Mr. Daniel Vizina, Ing., Transports Québec

Mr. Greg Williams, Professional Engineer, C-SHRP National Coordinator

The contributions of Mr. W. S. Langley, Professional Engineer, of W. S. Langley and Associates Limited and Dr. Doug Hooton, Professional Engineer, of John Emery Geotechnical Engineering Limited to the initial C-SHRP study are also gratefully acknowledged.

This is a preview. Click here to purchase the full publication.