

# **Understanding Adhesive Anchors: Behavior, Materials, Installation, Design 2010**

**At the ACI 2010 Spring Convention'UR/4: 5**

**Chicago, Illinois, USA  
21-25 March 2010**

**Editors:**

**R. Wollmershauser**

**D. Meinheit**

**ISBN: 978-1-61839-800-0**

**Printed from e-media with permission by:**

Curran Associates, Inc.  
57 Morehouse Lane  
Red Hook, NY 12571



**Some format issues inherent in the e-media version may also appear in this print version.**

Copyright© (2010) by the American Concrete Institute  
All rights reserved.

Printed by Curran Associates, Inc. (2012)

For permission requests, please contact the American Concrete Institute  
at the address below.

American Concrete Institute  
38800 Country Club Drive  
Farmington Hills, MI 48333 USA

Phone: (248) 848-3700

Fax: (248) 848-3701

BKStore@concrete.org

**Additional copies of this publication are available from:**

Curran Associates, Inc.  
57 Morehouse Lane  
Red Hook, NY 12571 USA  
Phone: 845-758-0400  
Fax: 845-758-2634  
Email: curran@proceedings.com  
Web: www.proceedings.com

## TABLE OF CONTENTS

SP-283—1	
Adhesive Anchors—Requirements for Their Reliable Use in Concrete Construction.....	1.1
Authors: Rolf Eligehausen and Werner Fuchs	
SP-283—2	
Design and Qualification Provisions for Adhesive Anchors in Concrete .....	2.1
Author: John F. Silva	
SP-283—3	
Adhesive Anchors Across Borders: A Current Look at the Similarities and Differences Between Testing, Qualification, and Design of Adhesive Anchors in the U.S.and Europe .....	3.1
Authors: Andra Hörmann-Gast and Jacob Olsen	
SP-283—4	
Installation of Adhesive Anchors—Theory and Practice .....	4.1
Authors: Philipp Grosser, Werner Fuchs, and Rolf Eligehausen	
SP-283—5	
Building Code Requirements for Inspections of Adhesive Anchors in Concrete.....	5.1
Authors: Mahmut Ekenel and Brian Gerber	
SP-283—6	
Design Method for Splitting Failure Mode of Adhesive Anchor Systems.....	6.1
Author: Jörg Asmus	
SP-283—7	
Outline of Japanese Guideline for Influence of the Embedment Length and the Edges on Tensile Resistance of Post-Installed Bonded Anchor .....	7.1
Authors: Katsuhiko Nakano, Yasuhiro Matsuzaki, and Tomoaki Sugiyama	
SP-283—8	
Stress Versus Time-To-Failure Test Method for Evaluating the Sustained Load Performance of Adhesive Anchor Systems in Concrete.....	8.1
Authors: Todd M. Davis and Ronald A. Cook	
SP-283—9	
Behavior and Design of Adhesive Anchors Under Sustained Load.....	9.1
Authors: Rolf Eligehausen, Ronald Blochwitz, and Werner Fuchs	
SP-283—10	
Evaluation of Sustained Load Behavior of Bonded Anchors—Evaluation Testing Vs. Long-Term Results .....	10.1
Author: Hannes A. Spieth	

## TABLE OF CONTENTS

SP-283—11	
Effect of Environmental Exposure on the Creep Behavior of Adhesive Anchors ...	11.1
Authors: Adham M. El Menoufy, Khaled A. Soudki, Ahmed K. El Sayed, and Hannah Schell	
SP-283—12	
Reliability Assessment of Bonded Anchor Systems by Use of Probabilistic Methods .....	12.1
Authors: Ronald Mihala, Andreas Unterweger, and Konrad Bergmeister	
SP-283—13	
Curing and Load Performance of Adhesives Anchor Systems Installed at Low Temperatures .....	13.1
Authors: Ingo Alig, Dirk Lellinger, Frank Böhm, Ralf Neuerburg, and Friedrich Wall	
SP-283—14	
Effect of Fly Ash as Cement Replacement on the Short Term Bond Strength of Adhesive Anchors Systems.....	14.1
Author: Peter Grzesik	
SP-283—15	
Simulation of Adhesive Anchoring Systems in Concrete.....	15.1
Authors: B. Winkler, Y. Li, and F. Wall	
SP-283—16	
Design of Carbon Fiber-Anchors Applied for Seismic Retrofitting with Carbon Fiber Sheets.....	16.1
Authors: J. Iketani, H. Tsukagoshi, and M. Kawakami	
SP-283—17	
Strength Evaluation of Single Adhesive Concrete Anchors under Tensile Load using Artificial Neural Networks .....	17.1
Authors: A.M. Said and S.E. Robinson	
SP-283—18	
EOTA Approach to Qualification and Design of Post-Installed Adhesive Anchors for Fire Exposure.....	18.1
Authors: Werner Fuchs and John Silva	