Subject to priorities defined by the Technical Council and the Presidium, the results of fib’s work in Commissions and Task Groups are published in a continuously numbered series of technical publications called 'Bulletins'. The following categories are used:

<table>
<thead>
<tr>
<th>category</th>
<th>minimum approval procedure required prior to publication</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technical Report</td>
<td>approved by a Task Group and the Chairpersons of the Commission</td>
</tr>
<tr>
<td>State-of-Art Report</td>
<td>approved by a Commission</td>
</tr>
<tr>
<td>Manual, Guide (to good practice)</td>
<td>approved by the Technical Council of fib</td>
</tr>
<tr>
<td>Model Code</td>
<td>approved by the General Assembly of fib</td>
</tr>
</tbody>
</table>

Any publication not having met the above requirements will be clearly identified as preliminary draft.

This Bulletin N° 47 was approved as an fib Technical report by Commission 3 in May 2008.

This report was drafted by Task Group 3.6, Guidelines for environmental design, in Commission 3, Environmental aspects of design and construction:

Koji Sakai (Convener, Kagawa Univ., Japan)
Petra Hájek (Czech Technical Univ. in Prague, Czech Republic), Makoto Hisada (Tohoku Univ., Japan), Kenji Kawai (Secretary, Hiroshima Univ., Japan), Anna Kjepso (Dr.techn. Olav Olsen a.s., Norway), Hiroyuki Mizuguchi (Univ. of Tokushima, Japan), Takafumi Noguchi (University of Tokyo, Japan), Petr Stepánek (Brno Univ. of Technology, Czech Republic), Masaki Tamura (Tokyo Metropolitan Univ., Japan)

Full address details of Task Group members may be found in the fib Directory or through the online services on fib’s website, www.fib-international.org.

Cover image: CO₂ emission of a RC rigid frame viaduct (see Figure E-2).

© fédération internationale du béton (fib), 2008

Although the International Federation for Structural Concrete fib - fédération internationale du béton - does its best to ensure that any information given is accurate, no liability or responsibility of any kind (including liability for negligence) is accepted in this respect by the organisation, its members, servants or agents.

All rights reserved. No part of this publication may be reproduced, modified, translated, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without prior written permission.

First published in 2008 by the International Federation for Structural Concrete (fib)
Postal address: Case Postale 88, CH-1015 Lausanne, Switzerland
Street address: Federal Institute of Technology Lausanne - EPFL, Section Génie Civil
Tel +41 21 693 2747 • Fax +41 21 693 6245
fib@epfl.ch • www.fib-international.org

ISSN 1562-3610
ISBN 978-2-88394-087-1

Printed by DCC Document Competence Center Siegmar Kästl e.K., Germany