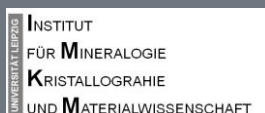


Workshop on Performance-based Specifications for Concrete

Final Program



Organized by



Supported by







Workshop on Performance-based Specifications for Concrete 14 – 15 June 2011

Organized by:

- MFPA Institute Leipzig
- IMKM Institute for Mineralogy, Crystallography and Material Science, University of Leipzig, Germany
- Concrete Materials and Structural Integrity Research Unit, CoMSIRU, University of Cape Town, South Africa

Supported by:

	fib	International Federation for Structural Concrete
	RILEM	International Union of Laboratories and Experts in Construction Materials, Systems and Structures
	DBV	Deutscher Beton- und Bautechnikverein e.V.
	DAfStb	Deutscher Ausschuss für Stahlbeton

Introduction

Recent advances in cementitious material and chemical admixture technology, as well as the growing use of recycled materials have supported the increasing use of modern types of concrete that are not covered in existing codes and specifications and which are tailor-made for a specific application or project.

Traditional prescriptive requirements for constituent materials, limiting water/binder ratios and cement contents are often not applicable for modern construction. The prescriptive design philosophy is largely based on the (often misleading) assumption that different concretes with similar mix proportions result in similar performance. With this approach, the combined influences of constituent material selection, construction procedures and ambient environmental conditions cannot adequately be accounted for.

In contrast, performance-based specifications relate to certain performance criteria that can be defined for a particular application. As such, performance-based specifications make demands on particular fresh or hardened concrete properties rather than on the concrete's composition. Performance-based design and specification therefore include the testing of relevant concrete properties and the evaluation of test results based on agreed conformity requirements.

With the advancement of testing methods for concrete, performance-based design and specification of concrete and concrete structures is possible and already applied in practice. The most widely accepted performance-based design approach is for compressive strength, which has been used for more than a century. For many applications, however, compressive strength alone is not a sufficient performance indicator, as the relationship between compressive strength and other important properties may vary widely between different types of concrete.

More recently, performance-based design approaches in combination with suitable test methods were developed for concrete durability and are already applied in practice in some countries, which is covered in the work of RILEM TC 230 PSC. In addition to compressive strength and durability, other properties (e.g. elastic/plastic deformations, fresh concrete properties, thermal characteristics during and after hardening, strength development, ductility, crack resistance, etc.) need to be considered.

The aims of the workshop “performance based specifications for concrete” are to obtain an overview of the state of the art knowledge, to exchange results and to simulate the discussion between researchers and industry.

We look forward to welcoming you in Leipzig.

F. Dehn

H. Beushausen

On behalf of the Organizing Committee

Workshop Committees

Organizing Committee

Prof. Dr.-Ing. F. Dehn, MFPA Institute Leipzig

Dr.-Ing. H. Beushausen, University of Cape Town

Mrs. K. Karsten, MFPA Institute Leipzig

Mr. C. Klimke, MFPA Institute Leipzig

Scientific Committee

The Scientific Committee consists of the members of the fib TG 8.10 “Performance-based Specifications for Concrete” and the members of the RILEM TC 230 PSC “Performance-based Specification and Control of Concrete durability”.

Workshop venue	Workshop secretariat
University of Leipzig Faculty for Economics Grimmaische Straße 12 Room 2 (1 st floor) D-04109 Leipzig/Germany (s. map on page 7)	Mrs. Kristine Karsten Hans-Weigel-Str. 2b D-04319 Leipzig/Germany E-Mail: karsten@mfpa-leipzig.de Fon: +(49) 162 9391 537 Fax: + (49) 341 6582 135

Technical Program - Tuesday, 14 June 2011

08:30 - 09:00 am Opening

09:00 - 10:30 am

Performance Criteria and Approach – Session 1

Performance specifications and quality assurance for concrete durability

O. E. GjØrv

Proof of concrete quality by "limiting values" and/or tests?

F. Jacobs

Guideline for Service Life Design of Structural Concrete - a performance-based approach with regard to chloride-induced corrosion

R. B. Polder, G. van der Wegen and K. van Breugel

Interest in probabilistic approach for the concept of equivalent durability

P. Rougeau

10:30 - 11:00 am Coffee break

11:00 am - 01:00 pm

Concrete Properties and Quality Assurance – Session 1

A fresh look at mix design procedures in the light of field concreting requirements

S. Curtis

Investigation of the critical period for plastic shrinkage cracking

R. Combrinck and W.P. Boshoff

Effect of superabsorbent polymers on properties of strain-hardening cement-based composites

A.-E. Brüderl and V. Mechtcherine

Rice husk ash as a supplementary cementitious material in UHPC

V. An and H.-M. Ludwig

Thermal behaviour of concrete mixes with different pozzolanic additions

A. Gregori, F. Surico, R. Marino and F. Longhi

01:00 - 02:00 pm Lunch break

02:00 - 04:00 pm

Prediction and Modelling – Session 1

Assessment of the alkali-reactive potential of specific concrete mixtures to mitigate damaging ASR in concrete structures

I. Borchers and C. Müller

Finite element calculations for the prediction of cracks in concrete supercontainers

B. Craeye and G. De Schutter

Performance-based approach to modelling SHCC cracking

W.P. Boshoff

Prediction of concrete properties based on particle packing technology

S. Fennis, J. Walraven and J. den Uijl

Prediction of shrinkage and creep of HSC

E. Marusic, N. Stirmer and N. Akrap

04:00 - 04:30 pm Coffee break

04:30 - 06:30 pm

Concrete Properties and Quality Assurance – Session 2

The use of recovered paint to enhance the performance of more-sustainable concrete mixes

N. Almesfer, L. McSaveney, G. Norton and J. Ingham

An investigation of the behaviour of low volume – Fibre Reinforced Concrete in the fresh state subjected to high temperatures

J.-L. Maritz, R. Combrinck and W.P. Boshoff

Control of autogeneous shrinkage in high strength SCC

M. J. Oliveira, A. B. Ribeiro and F. G. Branco

Influence of different curing conditions on mechanical and durability properties of fly ash HSC

M. Sklazlic, M. Barisevic and K. Ille

Concrete mix design for performance-based concrete

V. Vimmr, M. Sarkkinen and D. Reid



08:00 pm Workshop Dinner

Technical Program - Wednesday, 15 June 2011

09:00 - 10:30 am

Performance Criteria and Approach – Session 2

Concrete Properties and Quality Assurance – Session 3

The use of computer-tomography for analysis of Steel Fibre Reinforced Concrete

F. Schuler, J. Schnell and K. Schladitz

Some aspects of the DEF in concrete - A review

D. Bjegovic and I. Cigrovski

Classification tool for specification of concrete surfaces

M. B. Eide, H. Vikan, K. Kaspersen, H. Schulerud and T.A. Martius-Hammer

Assessment of concrete cover in structures

Part 1 - Statistical tolerance analysis approach

A. Monteiro and A. Goncalves

Assessment of concrete cover in structures

Part 2 - Case studies

A. Monteiro and A. Goncalves



10:30 – 11:00 am Coffee break

11:00 am - 01:00 pm

Prediction and Modelling – Session 2

Performance-based life-time assessment of concrete structures

A. Strauss, R. Wendner and K. Bergmeister

Development of life-time evaluation program for concrete structures by computational analysis

S. Miyazato, K. Takewaka, T. Noguchi and T. Yamaguchi

Predictive modeling of concrete degradation

B. Teplý, M. Chromá and P. Rovnaník

Concrete exposed to chlorides - Probabilistic design for durability using
advanced damage models

M. Raupach and M. Kosalla

Evaluation of service life of RC structures in the Middle East-Preliminary results

M. Nagi, Y.A. Rous, U. Jacir, H. Basma, J. Aldred and E. Saqan



01:00 - 02:00 pm Lunch break

02:00 - 04:00 pm

Performance Criteria and Approach – Session 3

The influence of wind on chloride accumulation at the concrete surface

I. Stipanovic Oslakovic, D. Bjegovic and D. Mikulic

The South African performance-based approach for specification and
control of concrete durability

H. Beushausen and M. Alexander

New performance criteria for fresh Tremie Concrete

K. Beckhaus, M. Larisch and H. Alehossein

Properties of repair mortars - potentials and risks of a tailor-made mixture
proportioning

P. Ramge, H.-C. Kühne and B. Meng

Performance-based assessment of durability and prediction of RC structure
service life by means of durability indicators - The case of chloride ingress

V. Baroghel-Bouny, X. Wang and M. Thiéry

Practical implications of performance specifications for durability design
of RC structures

J. Gulikers



04:00 - 04:30 pm Coffee break

04:30 – 06:30 pm Closing Discussion

Venue and Accommodation



Registration and Registration Fee

Please complete the online-registration form on the following MFPA website

(<http://mfpa-leipzig.de/index.php?id=mfpa-workshop>).

At least one of the authors must register and pay the registration fee till May, 31st 2011 at the latest.

Regular participants	€ 350. -
Students (BSc, MSc, PhD)	€ 100. -
Accompanying persons	€ 100. -

The registration fee covers the workshop proceedings, the participation in all technical sessions, lunches, coffee breaks and the workshop dinner.

The fee for the accompanying persons covers the workshop dinner and the guided tour.

PAYMENT

The payment can be made by bank transfer or by credit card. Please indicate your preferred payment on the online-registration form.

For bank transfer please use the following information:

Sparkasse Leipzig

Account-No. 1100 560 781, Bank Code 860 555 92

I.B.A.N. DE 47 86055592 1100560781, B.I.C. (Swift) WELA DE 8 L

CONFIRMATION

The confirmation of participation will be distributed together with the workshop proceedings.

PERSONAL INVITATION

The workshop organizers will be pleased to send a personal invitation to the workshop participants upon request. The invitation is made only to help the participants raise travel funds or to obtain visa. It is not a commitment from the organizers to provide any financial support.

HOW TO REACH LEIPZIG

Airplane: The international airport of Leipzig-Halle can be reached by regular flights from several European destinations: www.leipzig-halle-airport.de.

Train: Central railway station (Leipzig Hauptbahnhof) is in walking-distance to most of the hotels on page 7.

Car: Highway A 14, Exit Leipzig Mitte in the direction to Leipzig city center.

PROCEEDINGS

You will find the proceedings among your workshop documents.

LANGUAGE

The official language of the workshop is English.

MEALS AND REFRESHMENTS

Meals and refreshments will be served during the breaks in front of the workshop room. Cold beverages will be served during the sessions. If you're requesting a special meal service please let us know.

USEFUL REMARKS

Please check the German regulations concerning your country with regard to visas and vaccination rules when making your travel arrangements. Information can be obtained from your nearest German Embassy or Consulate.

CURRENCY

The monetary unit in Germany is the EURO (€; EUR). On May 24th 2011, the exchange rate was approximately € 0.711 = 1 US\$.

Social Program

During your stay in Leipzig we try to arrange a social program for the accompanying persons. If you want to participate you are asked to send an E-Mail to the workshop secretariat.

Bach Fest Leipzig

This already traditional event takes place from 10th -19th June 2011 under the motto "...after Italian taste". www.bach-leipzig.de

Monument of the Battle of Nations

The Monument of the Battle of Nations, the biggest monument of Germany, reminds its visitors of the important victory of the European allied army against Napoleon. Today it is a European monument of peace. Guidance, concerts, open air events, different sorts of exhibitions in the „Ruhmeshalle“ also concerning the history of the Monument of the Battle of Nations.

Straße des 18. Oktober 100, 04299 Leipzig

Open: 10am to 6pm; Price: € 6. -

http://www.stadtgeschichtliches-museum-leipzig.de/site_english/voelkerschlachtdenkmal/index.php

Leipzig Zoo

Explore the "Zoo of the Future" on your safari into the world of animals. Be part of an unforgettable adventure when visiting „Pongoland“, the biggest ape facility of the world or having an audience with the lion king in the lion savannah „Makasi-Simba“ or join a safari through the lengths of the „Kiwara Savannah“ and enjoy watching the interaction of giraffes, antelopes, zebras, ostriches and flamingos. In the nature-orientated created „Tiger-Taiga“ the visitors can watch the tigers taking their bath. Get in touch with Asian allure in the „Ganesha Mandir“ temple of elephants. Leipzig Zoo allows you to watch an elephant under water, having his bath through bulletproof glass. At the moment there are last preparations for the opening of „Gondwanaland“ in July. You can feel tropical experience in the world of this unique hall.

Pfaffendorfer Straße 29, 04105 Leipzig

Open: 9am to 7pm; Price: € 13. - www.zoo-leipzig.de

Asisi Panometer

The Berlin artist Yadegar Asisi shows its Magical Picture of nature AMAZONIA. The 100 meter long and 30 meter high world largest 360° panorama in celebration on Humboldt's legacy will take visitors on a virtual expedition to a lush green environment near the equator. Typical background noises from tropical latitudes will round off the visual experience. AMAZONIA will show the beauty and complexity of the Brazilian flora and fauna.

Richard-Lehmann-Straße 114, 04275 Leipzig

Open: 10am to 8pm; Price: € 9. - www.asisi.de

Leipzig at night

A prime venue for Leipzig visitors looking for night time entertainment and in search of a little nostalgia is Moritzbastei (www.moritzbastei.de), a youth and student club in the former city bastions extending three floors underground. The former fortifications next to the University lecture halls were excavated between 1974 and 1976 by students from the University in their spare time and turned into a club. Today, the club comprises several vaults and rooms for a wide range of activities ranging from concerts to exhibitions. In the summer, even the roof is put to use used for theatre performances, concerts and open-air movie shows.

If this is your first visit to Leipzig you don't have to miss our restaurant-mile called the "Barfußgäßchen" or "Drallewatsch". On a very small area you can find a lot of little pubs and bars and feel the special flair of Leipzig and the Saxon inhabitants.

(<http://www.stadtpanoramen.de/leipzig/drallewatsch.html>)

