

fib BULLETIN NO. 93

TITLE: BIRTH CERTIFICATE AND THROUGH-LIFE MANAGEMENT DOCUMENTATION

Year: 2020
 Pages: 90
 Format approx. DIN A4 (210x297 mm)
 ISBN: 978-2-88394-137-3
 DOI: doi.org/10.35789/fib.BULL.0093

Abstract:

While it is generally accepted by owners and users that vehicles such as airplanes or cars must be subjected to a pre-defined maintenance plan during their lifetime, this is less obvious in public opinion for engineering structures and buildings. This may be related to the general feeling that “moving objects” should be more sensitive to aging and deterioration than “structures anchored in ground”! This may also relate to the fact that detailed maintenance manuals, which are considered obligatory by insurance companies, are generally for aircraft, boats and cars, but not systematically for civil engineering structures, except for iconic or major projects.

The performance-based approach to the durability design and assessment of concrete structures is also becoming increasingly popular in the construction sector. In recent years, numerous studies have been carried out worldwide in order to better assess the expected properties related to the durability of concrete. This has led to the standardization of test protocols, but also to a better understanding of the main parameters impacting the overall durability of concrete. Documentation related to durability indicators will then become increasingly necessary for the accurate implementation of a performance-based approach that enables the promotion of sustainable materials.

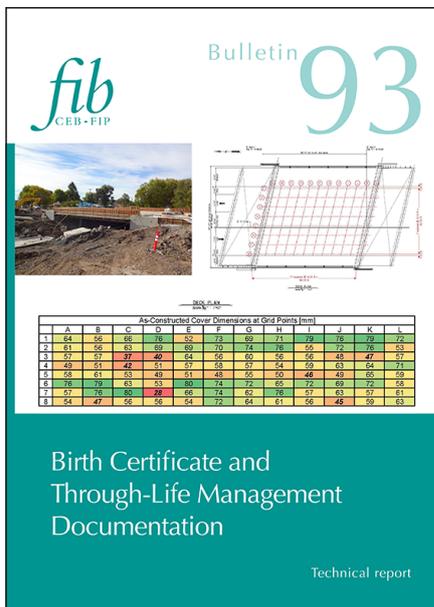
Durability models have a strong need for relevant in-field data feedback in order to define accurate inputs for modelling both during the design process (gathered from previous projects) and during the follow-up process to allow for re-calibration of inputs and re-assessment of durability expectations by the models if judged necessary.

A framework for data collection was therefore considered extremely importance by the fib Commission 8: Durability, and is the objective of this fib Technical report “Birth-certificate and Through-Life Management Documentation”. It is indeed very important to collect relevant data within a comprehensive and standardized format, as now proposed by this fib Bulletin. Thanks to its pre-defined format, compatible with the general fib framework, “Birth-certificate and Through-Life Management Documentation” will definitively be useful to owners for the maintenance plan and intervention strategies of their assets.

This operational technical report will also be very useful for designers, as it should encourage the collection of relevant information in databases to be used for future projects where a realistic assessment of expected properties is considered through largely similar concrete mix designs under given exposure conditions.

The Commission, which deals with durability aspects, hopes that this Bulletin will provide users a valuable tool and perspective on service life management issues.

Lionel Linger
 Commission 8 Durability Chair



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TITLE: PRECAST CONCRETE BRIDGE CONTINUITY OVER PIERS

Year: 2020
 Pages: 44
 Format approx. DIN A4 (210x297 mm)
 ISBN: 978-2-88394-140-3
 DOI: doi.org/10.35789/fib.BULL.0094

Abstract:

Concrete bridges are an important part of today’s road infrastructure. An important part of those concrete bridges is to a large extent prefabricated. Precast concrete enables all the advantages of an industrialized process to be fully utilized. Contemporary concrete mixtures are used to realize high-strength bridge girders and piers that exactly meet the requirements set, both structurally and aesthetically, with a small ecological footprint. Sustainable and durable! On the construction site, there is no need for complex formwork, the execution time is drastically reduced and where road, water and rail traffic on or under the bridge has to be temporarily interrupted, it is only minimally inconvenienced during the execution of the project.

There is a wide variety of prefabricated bridges. In 2004, the fib commission on prefabrication already published the Bulletin 29 Precast concrete bridges which, in addition to the history of prefabricated bridges, also gave an overview of the different bridge types and structural systems. This document elaborates on one specific structural system: the continuous bridge. Task Group 6.5 “Precast concrete bridges” discusses in detail how to achieve continuity over the piers with precast elements. This bulletin bundles the experiences of experts in the field of bridge design so that less experienced designers would be able to identify the points of attention and make a correct design. In addition to the theoretical considerations, the principles are tested against three realizations in the USA and Europe.

Commission 6 thanks the Co-Convener Maher Tadros and Hugo Corres and all active members of the Task Group for sharing their knowledge and experience and for the successful realization of this bulletin.

Stef Maas: Chair of the Commission 6: Prefabrication and Harry Gleich: Chair of PCI Technical Activities Council

