IN-LB	Inch-Pound Units
SI	International System of Units

Service Life Evaluation—Design Specification

Reported by ACI Committee 365

ACI CODE-365-24

American Concrete Institute
Always advancing

American Concrete Institute
Always advancing

First Printing: November 2024
ISBN: 978-1-64195-275-0

Service Life Evaluation—Design Specification

The technical committees responsible for ACI committee reports and standards strive to avoid ambiguities, omissions, and errors in these documents. Despite these efforts, the users of ACI documents occasionally find information or requirements that may be subject to more than one interpretation or may be incomplete or incorrect. Users who have suggestions for the improvement of ACI documents are requested to contact ACI via the errata website at http://concrete.org/Publications/DocumentErrata.aspx. Proper use of this document includes periodically checking for errata for the most up-to-date revisions.

ACI committee documents are intended for the use of individuals who are competent to evaluate the significance and limitations of its content and recommendations and who will accept responsibility for the application of the material it contains. Individuals who use this publication in any way assume all risk and accept total responsibility for the application and use of this information.

All information in this publication is provided “as is” without warranty of any kind, either express or implied, including but not limited to, the implied warranties of merchantability, fitness for a particular purpose or non-infringement.

ACI and its members disclaim liability for damages of any kind, including any special, indirect, incidental, or consequential damages, including without limitation, lost revenues or lost profits, which may result from the use of this publication.

It is the responsibility of the user of this document to establish health and safety practices appropriate to the specific circumstances involved with its use. ACI does not make any representations regarding health and safety issues and the use of this document. The user must determine the applicability of all regulatory limitations before applying the document and must comply with all applicable laws and regulations, including but not limited to, United States Occupational Safety and Health Administration (OSHA) health and safety standards.

Participation by governmental representatives in the work of the American Concrete Institute and in the development of Institute standards does not constitute governmental endorsement of ACI or the standards that it develops.

ACI documents are written via a consensus-based process. The characteristics of ACI technical committee operations include:
(a) Open committee membership
(b) Balance/lack of dominance
(c) Coordination and harmonization of information
(d) Transparency of committee activities to public
(e) Consideration of views and objections
(f) Resolution through consensus process

The technical committee documents of the American Concrete Institute represent the consensus of the committee and ACI. Technical committee members are individuals who volunteer their services to ACI and specific technical committees.

American Concrete Institute
38800 Country Club Drive
Farmington Hills, MI 48331
Phone: +1.248.848.3700
Fax: +1.248.848.3701

www.concrete.org

ACI CODE-365-24

Service Life Evaluation—Design Specification

An ACI Standard

Reported by ACI Committee 365

Kyle D. Stanish, Chair

Jose Pacheco, Secretary

Marwa Abdelrahman
James M. Aldred
Muhammed P. A. Basheer
Evan C. Bentz
Neal S. Berke
Richard Cantin
Larry D. Church
Carolyn M. Hansson
Doug Hooton
Meghdad Hoseini
O. Burkan Isgor
Zoubir Lounis
Matthew A. Miltenberger
Mohamad Nagi
Paul A. Noyce
Karthik H. Obla
Bruce G. Smith
Michael D. A. Thomas*
Wael A. Zatar
Shengjun Zhou

Consulting Members

Antonio J. Aldykiewicz Jr.
David G. Manning
Charles D. Pomeroy
Jesus Rodriguez
Paul G. Tourney
Alexander M. Vaysburd
Yash Paul Virmani

Liaison Members

Dirk Schlicke
Vute Sirivivatnanon

*Deceased.

This Design Specification provides minimum requirements for performing a service life evaluation as part of the design process for new structures and implementing the results of the evaluation into the construction phase. This Design Specification can be used as part of a design-bid-build project, a design-build project, or other project delivery options. The Design Specification is independent of the specific model or technique used to perform the service life evaluation. Although service life modeling is commonly used to evaluate chloride transport causing corrosion deterioration, the approach outlined in this Design Specification can be used for any deterioration mechanism that is capable of being modeled. The service life engineer performing the evaluation can either be the prime consultant or a subconsultant. A service life report is produced as part of this specification, documenting the service life evaluation, followed by a service life record report documenting the implementation into the new construction.

Keywords: degradation mechanisms; deterministic modeling; durability; performance design; probabilistic modeling; quality control/quality assurance; service life prediction.

CONTENTS

ACI CODE-365-24 was approved by the ACI Standards Board for publication July 2024, and published November 2024.

CODE

CHAPTER 1—GENERAL

1.1—Scope

1.1.1 This Design Specification provides the minimum requirements for performing, implementing, and documenting service life predictions of new concrete structures or portions thereof.

1.1.2 This Design Specification is intended to be adopted by contract for a specific project. The project scope documents shall define the structures or type and number of concrete members or systems for which service life predictions are applicable.

1.1.3 Modifications to this Design Specification can be adopted by contract, but they are not considered part of this Design Specification.

1.2—Purpose

1.2.1 The purpose of this Design Specification is to provide minimum requirements for performing a service life prediction for a new concrete structure.

COMMENTARY

CHAPTER R1—GENERAL

R1.1—Scope

R1.1.1 This Design Specification does not address existing structures. Although the principles for conducting a service life prediction are similar for new and existing structures, performing service life predictions on existing, repaired, or rehabilitated structures can be more challenging. The service life engineer must be aware of current conditions, typically through performing a condition assessment of the structure or members to be repaired before performing service life predictions. Guidance on conducting a condition assessment can be found in ACI 364.1.

R1.1.2 The procedures and requirements outlined in this Design Specification can also be used when not specifically adopted to demonstrate that a comprehensive service life prediction has been performed.

R1.1.3 The American Concrete Institute recommends that this Design Specification be adopted in its entirety. When modifications to the Design Specification are implemented, they become the responsibility of the entity implementing the changes.

R1.2—Purpose

R1.2.1 The procedure outlined in the document is shown in Fig. R.1.2.1.