Second edition
2017-07

Buildings and constructed assets — Service life planning —

Part 5: Life-cycle costing

Bâtiments et biens immobiliers construits — Prévision de la durée de vie —

Partie 5: Approche en coût global

Reference number
ISO 15686-5:2017(E)

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 59, *Buildings and civil engineering works*, Subcommittee SC 14, *Design life*.

This second edition cancels and replaces the first edition (ISO 15686-5:2008), which has been technically revised.

The main changes compared to the previous edition are as follows:

— several clauses have been technically revised to clarify the distinction between normative content and guidance text;

— Annexes C and D have been technically revised to make them clearer;

— the bibliography has been updated.

A list of all parts in the ISO 15686 series can be found on the ISO website.

Introduction

Objectives

The key objectives of this document are to:

— establish clear terminology and a common methodology for life-cycle costing (LCC);

— enable the practical use of LCC so that it becomes widely used in the construction industry;

— enable the application of LCC techniques and methodology for a wide range of procurement methods;

— help to improve decision making and evaluation processes at relevant stages of any project;

— address concerns over uncertainties and risks and improve the confidence in LCC forecasting;

— make the LCC and the underlying assumptions more transparent and robust;

— set out the guiding principles, instructions and definitions for different forms of LCC and reporting;

— provide the framework for consistent LCC predictions and performance assessment, which facilitates more robust levels of comparative analysis and cost benchmarking;

— provide a common basis for setting LCC targets during design and construction, against which actual cost performance can be tracked and assessed over the asset life span;

— provide guidance on when to undertake LCC, to what level and what cost headings are appropriate for consideration;

— help unlock the real value of effectively doing LCC in construction by using service life planning;

— clarify the differences between life-cycle costing and whole-life costing (WLC);

— provide a generic menu of costs for LCC/WLC compatible with and customizable for specific national or international cost codes and data-structure conventions;

— provide cross-references to guidance on associated activities within the other parts of ISO 15686.

Life-cycle costing, service life planning and other performance requirements

Life-cycle costing is a valuable technique that is used for predicting and assessing the cost performance of constructed assets. Life-cycle costing is one form of analysis for determining whether a project meets the client's performance requirements. Analyses can necessitate the use of other parts of ISO 15686 and current economic data from clients and the construction industry (see Figure 1). It is possible to use this document without extensive reference to others, although a number of the terms and techniques described are covered in more detail in the other parts. Where applicable, this is referenced in the text. The other parts of ISO 15686 that are most relevant for life-cycle costing are ISO 15686-1 and ISO 15686-3.

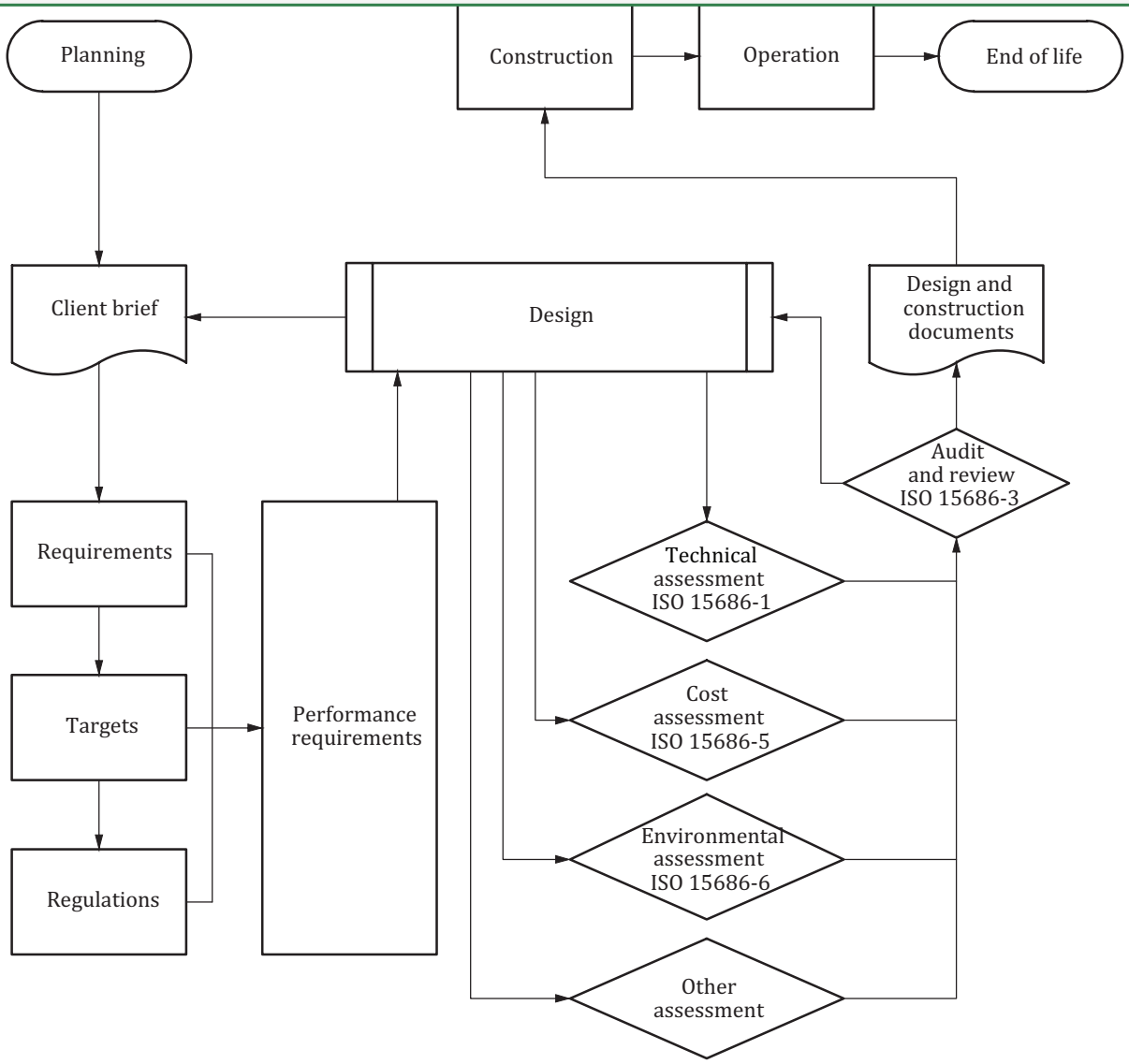

Figure 1 — Performance requirements in the context of the project life cycle

The Bibliography includes some informative national standards and guidance that provide more detail on aspects such as levels of cost analysis, examples of analysis and application of the principles for practical projects.

Who can use this document?

The provisions of this document are intended primarily for:

— procurers of constructed assets, with an interest in long-term ownership; these may be public or private, or lessees with a reasonably long period of interest in the property and/or responsibility for maintenance and/or operational costs;

— designers;

— constructors and their specialist suppliers of materials and components;

— facility operators (to help them input more effectively into the design process);

— cost consultants and other specialists.

The provisions in this document are particularly relevant to public clients, where the lack of any projected income from some constructed assets can make traditional investment appraisals more challenging. They are also relevant to the work of specialists providing information on service life and on environmental performance.

The period of interest of the client and the contractual responsibilities/liabilities for meeting costs tend to determine the requirements for life-cycle costing.

Life-cycle costing is relevant at portfolio/estate management, constructed asset and facility management levels, primarily to inform decision-making and for comparing alternatives. Life-cycle costing allows consistent comparisons to be performed between alternatives with different cash flows and different time frames. The analysis takes into account relevant factors from throughout the service life, with regard to the client's specified brief and the project-specific service life performance requirements.