



**International
Standard**

ISO 4931-1

**Buildings and civil engineering
works — Principles, framework and
guidance for resilience design —**

**Part 1:
Adaptation to climate change**

*Bâtiments et ouvrages de génie civil — Principes, cadre et
recommandations pour la conception de la résilience —*

Partie 1: Adaptation au changement climatique

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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 document 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).

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This document was prepared by Technical Committee ISO/TC 59, *Buildings and civil engineering works*.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Introduction

Adaptation to climate change has become an urgent need globally. According to the United Nations Environment Programme (UNEP)'s Adaptation Gap Report 2022, "we must also urgently increase efforts to adapt to the impacts of climate change that are already here and to those that are to come".

In the context of global climate change, buildings and civil engineering works with service lives of decades or even centuries will face new climate challenges. These challenges include the increase of frequency and intensity in extreme weather events such as heatwaves, wildfires and floods, as well as chronic changes such as sea level rise. This can result in increase of vulnerability in built assets designed based on the climate of the past decades, risking human health and well-being, and causing economic loss and social impacts. Therefore, adaptation to climate change in buildings and civil engineering works should be considered in a timely manner.

This document provides a design approach called the resilience design adaptive to climate change (RDACC), which offers specific guidance on how to produce buildings and civil engineering works with climate change resilience. It is a method for adaptation to climate change at the engineering level.

The typical actions of RDACC include:

- identifying changes in climatic impact-drivers;
- identifying resilience limits and decision making on strategies;
- monitoring and optimization;
- decommissioning.

This document is useful to stakeholders including asset owners and users, investors, authorities, standards developers, meteorologists, engineers, architects, manufacturers, builders, and other parties involved in the RDACC.

Buildings and civil engineering works — Principles, framework and guidance for resilience design —

Part 1: Adaptation to climate change

1 Scope

The document provides principles, framework, and guidance for resilience design adaptive to climate change (RDACC) in buildings and civil engineering works. RDACC is applicable to both new construction and retrofits.

RDACC does not address:

- adaptation to climate change in the production and procurement of building materials, components and devices;
- adaptation to climate change in construction processes;
- climate change mitigation in buildings and civil engineering works;
- emergency management related to climate change in buildings and civil engineering works.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <https://www.electropedia.org/>

3.1

adaptation to climate change

climate change adaptation

process of adjustment to actual or expected *climate* (3.3) and its effects

Note 1 to entry: In human systems, adaptation seeks to moderate or avoid harm or exploit beneficial opportunities.

Note 2 to entry: In some natural systems, human intervention can facilitate adjustment to expected climate and its effects.

[SOURCE: ISO 14090:2019, 3.1]