International Standard

ISO 13315-5

First edition
2025-12

Environmental management for concrete and concrete structures —

Part 5: Execution of concrete structures

Reference number
ISO 13315-5:2025(en)

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Published in Switzerland

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Foreword

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This document was prepared by Technical Committee ISO/TC 71, *Concrete, reinforced concrete and pre-stressed concrete*, Subcommittee SC 8, *Environmental management for concrete and concrete structures.*

A list of all parts in the ISO 13315 series can be found on the ISO website.

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.

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Introduction

Execution of a concrete structure refers to activities of constructing a relatively large-scale structure as single production at a given construction site. It essentially differs from ordinary industrial products, which, as a result of mass production, have similar functions and performances to each other. When executing a concrete structure, it is necessary to plan and execute each phase of construction work in consideration of the scale of execution, condition of the ground, procurement conditions for materials and equipment, ambient environment and global environment.

Execution of a concrete structure generally includes earthwork and foundation work, formwork, reinforcement work and concreting work.

Such construction works cause a wide variety of environmental impacts. These include, for instance, consumption of resources by the input of materials to execution of concrete structures; consumption of fuels and electric power by the transportation of materials, equipment and heavy machinery and operation of equipment and heavy machinery; and discharge of global warming substances and air-polluting substances while generating noise and vibration. Earthwork and foundation work generate solid waste including excavated soil, rock, dug-out roots, sludge and mud, dust and wastewater. Formwork generates used forms, and reinforcement work generates metal waste. Concreting work generates washwater for concrete pumps and buckets and concrete waste.

It is therefore necessary to appropriately manage the environmental impacts generated by execution of concrete structures.

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Environmental management for concrete and concrete structures —

Part 5:
Execution of concrete structures

1 Scope

This document provides the principles and procedures of environmental management for execution activities of concrete structures, which comprises earthwork/foundation work, formwork, reinforcement work, concreting work and waste treatment.

Additional works for concrete structures such as electric work and utility work are outside the scope of this standard.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 13315-1, *Environmental management for concrete and concrete structures — Part 1: General principles*

ISO 13315-2, *Environmental management for concrete and concrete structures — Part 2: System boundary and inventory data*

ISO 13315-4, *Environmental management for concrete and concrete structures — Part 4: Environmental design of concrete structures*

ISO 13315-6, *Environmental management for concrete and concrete structures — Part 6: Use of concrete structures*

ISO 13315-8, *Environmental management for concrete and concrete structures — Part 8: Environmental labels and declarations*

ISO 14040, *Environmental management — Life cycle assessment — Principles and framework*

ISO 14044, *Environmental management — Life cycle assessment — Requirements and guidelines*

ISO 14050, *Environmental management — Vocabulary*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 13315-1, ISO 13315-2, ISO 13315-4, ISO 13315-6, ISO 13315-8, ISO14040, ISO14044 and ISO 14050 and the following apply.

ISO and IEC maintain terminological 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/

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3.1
target execution activity
execution activity for which environmental consideration is given.

3.2
reference execution activity
conventional standard execution activity, having the same purpose as the target execution activity, to be used for comparison in the environmental management related to execution activities

4 Symbols

Symbols used in this document are as follows:

$P_{\text{texe}}(i)$	expected or attained environmental performance of the target execution activity expressed as a function of indicator i;
$P^{\text{e}}_{\text{texe}}(i)$	expected environmental performance of the target execution activity expressed as a function of indicator i;
$P^{\text{a}}_{\text{texe}}(i)$	attained environmental performance of the target execution activity expressed as a function of indicator i;
$P_{\text{rexe}}(i)$	environmental performance of the reference execution activity expressed as a function of indicator i;
$S_{\text{exe}}(i)$	environmental performance requirement of the execution activity expressed as a function of indicator i;
$R_{\text{A texe}}(i)$	reduction amount of environmental impact of the target execution activity in comparison with reference execution activity;
$R_{\text{R texe}}(i)$	reduction rate of environmental impact of the target execution activity in comparison with reference execution activity;
$R^{\text{e}}_{\text{A texe}}(i)$	expected reduction amount of environmental impact of the target execution activity in comparison with reference execution activity;
$R^{\text{a}}_{\text{A texe}}(i)$	attained reduction amount of environmental impact of the target execution activity in comparison with reference execution activity;
$R^{\text{e}}_{\text{R texe}}(i)$	expected reduction rate of environmental impact of the target execution activity in comparison with reference execution activity;
$R^{\text{a}}_{\text{R texe}}(i)$	attained reduction rate of environmental impact of the target execution activity in comparison with reference execution activity.

5 Principles and procedure for environmental management related to execution of concrete structures

5.1 Principles

In the execution of a concrete structure, environmental management shall be carried out for the entire work consisting of earthwork/foundation work, formwork, reinforcement work, concreting work and waste treatment, or each of these works or combinations thereof.

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