

Design Loads on Structures during Construction

This document uses both the
International System of Units (SI)
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American Society of Civil Engineers

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Earlier drafts of this Standard and Commentary were reviewed and balloted several times by the full Standards Committee. The votes and comments returned by the members were reviewed and their proposed resolutions developed by the appropriate subcommittees. The resulting approved changes in the text are included in this volume.

Some of the provisions were adopted from other codes, standards, regulations, and specifications; some reflect prevailing industry design and construction practices; some

grew out of the experiences, practices, and opinions of members of the Committee; and some others were developed through research conducted specifically for this Standard by members of the Committee.

Preparation of a standard for *Design Loads on Structures during Construction* and its outline were originally proposed to ASCE by Robert T. Ratay in 1987, resulting in the first edition of the Standard published in 2002 as *ASCE/SEI 37-02, Design Loads on Structures during Construction*. The Committee, through its subcommittees, has been working on the development of a revision to the Standard to embrace comments, recommendations, and experiences since the original 2002 edition, and to supplement the loading requirements of *ASCE/SEI 7-10, Minimum Design Loads for Buildings and Other Structures*, since the latter does not include requirements for loads during construction. The environmental loads provisions of this *ASCE/SEI 37-14* have been aligned with those of *ASCE/SEI 7-10* and adjusted for the duration of the construction period.

Final committee balloting was completed, and public comments solicited and resolved in mid-2014.

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Design Loads on Structures during Construction, Standard ASCE/SEI 37-14, was developed over a period of several years by the Design Loads on Structures during Construction Standard Committee of the Codes and Standards Activities Division (CSAD) of the Structural Engineering Institute (SEI), and of the Codes and Standards Activities

Committee (CSAC) of the American Society of Civil Engineers (ASCE). This 2014 edition was prepared by six subcommittees of the Design Loads on Structures during Construction Standard Committee under the leadership of the following individuals:

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STANDARD

COMMENTARY

1.1 PURPOSE

The purpose of this standard is to provide minimum design load requirements during construction of buildings and other structures.

1.2 SCOPE

This standard addresses partially completed structures, temporary structures, and temporary supports used during construction. The loads specified herein are suitable for use either with strength design [such as ultimate strength design (USD) or load and resistance factor design (LRFD)] or with allowable stress design (ASD). The loads are equally applicable to all conventional construction materials.

This standard does not specify the party responsible for the design of temporary structures or temporary supports, or for the temporary use of incomplete structures. This standard also does not specify the party responsible for on-site supervision of the construction of temporary structures or temporary supports, or for the use of incomplete structures.

1.3 BASIC REQUIREMENTS

1.3.1 Structural Integrity Partially completed structures and temporary structures shall possess sufficient structural integrity, under all stages of construction, to remain stable and resist the loads specified herein.

Stability of the incomplete structure and the possibility of progressive collapse shall be considered.

C1.1 PURPOSE

The construction loads, load combinations, and load factors contained herein account for the often short duration of loading, and for the variability of temporary loads. Many elements of the completed structure that are relied upon implicitly to provide strength, stiffness, stability, or continuity are sometimes not present during construction.

The requirements in this standard complement those in ASCE/SEI 7-10 (ASCE/SEI 2010).

C1.2 SCOPE

In this standard, loads and load factors are based on probability where sufficient probabilistic information is available. Where there is insufficient probabilistic information, loads and load factors are established by experience and engineering judgment.

Safety factors for ASD and capacity reduction factors for strength design are not given in this standard. They are given or implied in the structural design standards for the various structural materials.

This standard is not intended to account for loads caused by gross negligence or error.

This standard is intended for use by engineers knowledgeable in the performance of structures.

Responsibilities for the design of temporary structures and temporary supports, for the design for temporary use of partially completed structures, and for supervision of site activities to control loads on structures are contractual matters that should be resolved among the parties involved in the construction of a structure. This standard is not intended to establish the responsible parties for any of those activities.

The requirements contained herein are not intended to adversely affect the selection of a particular construction material or type of construction.

C1.3 BASIC REQUIREMENTS

C1.3.1 Structural Integrity Structural integrity should be provided by sequencing the construction so as to avoid creating vulnerable partially completed portions of the structure; by completing the permanent system that supports lateral loads as the dependent portions of the structure are erected; by avoiding conditions that result in loads that exceed the capacity of structural elements and their connections; or otherwise by providing temporary supports.

In many cases, stronger members and connections than originally designed for the permanent structure will have to be provided to support construction loads.

Many structures experience higher wind loading on the open structure than on the completed, enclosed structure,