

Lateral Forces (Wind/Earthquake) Component of the Structural Engineering DEPTH Exam Specifications

Effective Beginning with the April 2018 Examination

The 4-hour **Lateral Forces (Wind/Earthquake)** depth examination is offered on Saturday afternoon. The depth modules of the Structural Engineering exam focus on a single area of practice in structural engineering. Examinees must choose either the **BUILDINGS** or the **BRIDGES** module. Examinees must work the same module on both components. That is, if bridges is the module chosen in the Vertical Forces component, then bridges must be the module chosen in the Lateral Forces component. All questions are constructed response (essay).

The exam uses the US Customary System (USCS) of units.

BUILDINGS

The **Lateral Forces (Wind/Earthquake)** Structural Engineering depth exam in **BUILDINGS** covers lateral forces, lateral force distribution, analysis methods, general structural considerations (element design), structural systems integration (connections), and foundations and retaining structures. This 4-hour module contains one problem from each of the following areas:

- Steel structure
- Concrete structure
- Wood and/or masonry structure
- General analysis (e.g., existing structures, secondary structures, nonbuilding structures, and/or computer verification)

All problems are equally weighted.

At least two problems include seismic content at Seismic Design Category D and above.

At least one problem includes wind content of at least 140 mph.

Problems may include a multistory building.

Problems may include a foundation.

BRIDGES

The **Lateral Forces (Wind/Earthquake)** Structural Engineering depth exam in **BRIDGES** covers gravity loads, superstructures, substructures, and lateral forces (including seismic). This 4-hour module contains three problems, one from each of the following areas:

- Piers or abutments (25% of your score)
- Foundations (25% of your score)
- General analysis of seismic forces (50% of your score)

STRUCTURAL ENGINEERING Design Standards¹

These standards apply to the Vertical and Lateral components of the Structural Engineering exam.

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ABBREVIATION	DESIGN STANDARD TITLE
AASHTO	<i>AASHTO LRFD Bridge Design Specifications, 7th edition (without interims), American Association of State Highway & Transportation Officials, Washington, DC.</i>
IBC	<i>International Building Code, 2015 edition (without supplements), International Code Council, Falls Church, VA.</i>
ASCE 7	<i>Minimum Design Loads for Buildings and Other Structures, 3rd printing, 2010, American Society of Civil Engineers, Reston, VA.</i>
ACI 318	<i>Building Code Requirements for Structural Concrete, 2014, American Concrete Institute, Farmington Hills, MI.</i>
AISC	<i>Steel Construction Manual, 14th edition, American Institute of Steel Construction, Inc., Chicago, IL.</i>
AISC	<i>Seismic Design Manual, 2nd edition, American Institute of Steel Construction, Inc., Chicago, IL.</i>
AISI S100	<i>North American Specification for the Design of Cold-Formed Steel Structural Members, 2012 edition, American Iron and Steel Institute, Washington, DC.</i>
AISI S213	<i>North American Standard for Cold-Formed Steel Framing–Lateral Design 2007 Edition with Supplement No. 1, October 2009 (reaffirmed 2012), American Iron and Steel Institute, Washington, DC.</i>
NDS	<i>National Design Specification for Wood Construction, 2015 edition & National Design Specification Supplement, Design Values for Wood Construction, 2015 edition, American Wood Council, Leesburg, VA.</i>
NDS	<i>Special Design Provisions for Wind and Seismic, 2015 edition, American Wood Council, Leesburg, VA.</i>
TMS 402/602	<i>Building Code Requirements and Specifications for Masonry Structures (and related commentaries), 2013; The Masonry Society, Boulder, CO; American Concrete Institute, Detroit, MI; and Structural Engineering Institute of the American Society of Civil Engineers, Reston, VA.</i>

Notes

1. Solutions to exam questions that reference a standard of practice are scored based on this list. Solutions based on other editions or standards will not receive credit. All questions use the US Customary System (USCS) of units.