

STRUCTURAL SYSTEMS

*Architect
Registration
Examination
4.0 (2015)*

General Structures
Lateral Forces
Structural Layout Vignette

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PREFACE

This book covers the material that the Architect Registration Exam (ARE) candidates need to know to successfully pass the Structural Systems division of the ARE 4.0. It is divided into five main parts:

PART I | GENERAL STRUCTURES

This part discusses the General Structures topics of the multiple choice section of the ARE 4.0. It is divided into five main sections: 1. Structural Theory, 2. Steel Structures, 3. Concrete Structures, 4. Wood Structures, and 5. Long Span Systems.

PART II | LATERAL FORCES

This part covers the topics related to the Lateral Forces topics of the multiple-choice section. It is divided into four main sections: 1. Different Types of Lateral Loads, 2. Building Structures Lateral Load Resisting Systems, 3. Wind Loading, and 4. Earthquake Loading.

PART III | STRUCTURAL LAYOUT VIGNETTE

This part provides information on the Structural Layout Vignette section of the ARE 4.0. It is divided into four main sections: 1. Directions on Using the NCARB's Vignette Drawing Software, 2. Important Considerations, 3. Steps for Answering the Vignette, and 4. Examples. Five complete examples of the vignette questions along with their answers are included.

PART IV | QUESTIONS AND ANSWERS

This part includes 255 multiple-choice sample questions along with detailed answers to each.

PART V | APPENDIX

This part includes a list of formulas and references that will be available to all candidates during their Structural Systems Exam.

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TEST ORGANIZATION

The table below shows the format and number of questions for the ARE 4.0 Structural System Division.

SECTION	NUMBER OF QUESTIONS	TIME LIMIT
MULTIPLE CHOICE TEST	125	3 hours 30 minutes
GRAPHIC TEST (STRUCTURAL LAYOUT)		1 hour
SCHEDULED APPOINTMENT TIME		5 hours 30 minutes

The percentage of the questions given from each topics are:

1. Multiple-Choice:

- General Structures (38%-42%)
 - Seismic Forces (28%-32%)
 - Wind Forces (14%-17%)
 - Lateral Forces (13%-16%)
-

2. Structural Layout Vignette:

- Design a schematic framing plan for a one-story building with a multi-level roof.

Note: the design methods used in the exam are:

Wood: Allowable Stress Design Method

Steel : Strength Design (Load and Resistance Factor Design) Method

Concrete : Strength Design (Ultimate Strength Design) Method

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