
CHAPTER 8

CONCRETE STRUCTURES AND FOUNDATIONS¹

FOREWORD

The material in this chapter is written with regard to typical North American Railroad Concrete Structures and Foundations and other structures mentioned herein with

- Standard Gage Track,
- Normal North American passenger and freight equipment, and
- Speeds of freight trains up to 80 mph and passenger trains up to 90 mph.

Additional special provisions for speeds higher than those listed above may be added by the Engineer as necessary.

This chapter is presented as a consensus document by a committee composed of railroad industry professionals having substantial and broad-based experience designing, evaluating, and investigating Concrete Structures and Foundations used by railroads. The recommendations contained herein are based upon past successful usage, advances in the state of knowledge, and current design and maintenance practices. These recommendations are intended for routine use and might not provide sufficient criteria for infrequently encountered conditions. Professional judgement must be exercised when applying the recommendations of this chapter as part of an overall solution to any particular issue.

This chapter is published annually, incorporating revisions made in the previous year. The latest published edition of the chapter should be used, regardless of the age of an existing structure. For purposes of determining historical recommendations under which an existing structure may have been built and maintained, it can prove useful to examine previous editions of the chapter. However, when historical recommendations differ from the recommendations contained in the latest published edition of the chapter, the recommendations of the latest published edition of the chapter should be used.

Part 8, Rigid Frame Concrete Bridges was deleted from the manual in 1975. Part 9, Reinforced Concrete Trestles was deleted from the manual in 1971. Part 15 is reserved for future use. Part 18, Elastomeric Bridge Bearings was moved to Chapter 15 in 2001.

¹ The material in this and other chapters in the AREMA *Manual for Railway Engineering* is published as recommended practice to railroads and others concerned with the engineering, design and construction of railroad fixed properties (except signals and communications), and allied services and facilities. For the purpose of this Manual, RECOMMENDED PRACTICE is defined as a material, device, design, plan, specification, principle or practice recommended to the railways for use as required, either exactly as presented or with such modifications as may be necessary or desirable to meet the needs of individual railways, but in either event, with a view to promoting efficiency and economy in the location, construction, operation or maintenance of railways. It is not intended to imply that other practices may not be equally acceptable.

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INTRODUCTION

The Chapters of the AREMA Manual are divided into numbered Parts, each comprised of related documents (specifications, recommended practices, plans, etc.). Individual Parts are divided into Sections by centered headings set in capital letters and identified by a Section number. These Sections are subdivided into Articles designated by numbered side headings.

Page Numbers – In the page numbering of the Manual (8-2-1, for example) the first numeral designates the Chapter number, the second denotes the Part number in the Chapter, and the third numeral designates the page number in the Part. Thus, 8-2-1 means Chapter 8, Part 2, page 1.

In the Glossary and References, the Part number is replaced by either a “G” for Glossary or “R” for References.

Document Dates – The bold type date (Document Date) at the beginning of each document (Part) applies to the document as a whole and designates the year in which revisions were last made somewhere in the document, unless an attached footnote indicates that the document was adopted, reapproved, or rewritten in that year.

Article Dates – Each Article shows the date (in parenthesis) of the last time that Article was modified.

Revision Marks – All current year revisions (changes and additions) which have been incorporated into the document are identified by a vertical line along the outside margin of the page, directly beside the modified information.

Proceedings Footnote – The Proceedings footnote on the first page of each document gives references to all Association action with respect to the document.

Annual Updates – New manuals, as well as revision sets, will be printed and issued yearly.