

Note: This document was superseded in March 2023 by: [Manual for Heat Straightening, Heat Curving and Cold Bending of Bridge Components](#)

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16. Abstract <p>The purpose of this manual is to provide comprehensive guidelines on heat straightening repair techniques for damaged steel bridge members. The manual is designed to be used in conjunction with a multimedia instructional computer program and video produced as part of this project.</p> <p>The manual is divided into three parts. Part I provides a background and overview of the heat-straightening process. The introductory chapter defines the fundamental types of damage amenable to heat-straightening repair. Chapter 2 describes the basics of heat straightening including: Why heat straightening works, types of heats, basic damage and heating patterns, equipment and its use and practical considerations. Chapter 3 describes methods of assessing, planning and conducting successful repairs along with common mistakes to avoid.</p> <p>Part II is a technical guide to heat straightening directed primarily to engineers. Chapters 4-6 provide details on affects of heating on material properties of steel, behavior of flat plates and response of rolled shapes subjected to heat straightening.</p> <p>Chapter 7 provides technical information on damaged composite beams and proper methods to repair them. Chapter 8 addresses axially loaded members and Chapter 9 discusses local damage. For all cases the proper heating patterns are used and the response is measured. Results are illustrated graphically and methods are given for predicting behavior.</p> <p>Part III contains guides, specifications and reference material. A comprehensive literature review is given in Chapter 10. A concise engineering guide to heat straightening is given in Chapter 11. A set of recommended specifications is given in Chapter 12 for selecting a heat straightening contractor as well as technical specifications which can be incorporated into a contract. Finally, a bibliography, glossary and list of nomenclature are given in Chapters 13-15. Revisions and errata are included in Appendix.</p>					
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