CHAPTER 10

SAFETY AND HEALTH

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INTRODUCTION

Safety and health are of utmost concern in all brazing operations. This chapter presents an overview of the governmental rules and regulations as well as of the adopted industrial standards that must be implemented. Additionally, other standards, guidelines, and recommended practices that augment legal safety requirements should be implemented to minimize the hazards associated with brazing. Topics discussed include a historical overview, safety management, protection of personnel and the work area, ergonomics, and process-specific safety and health concerns.

The limited scope of this chapter precludes an exhaustive examination of all health and safety concerns related to brazing. Brazing safety is subject to the provisions of the American National Standard Safety in Welding, Cutting, and Allied Practices, ANSI Z49.1. The requirements of this standard apply to brazing and braze welding, as well as to the other welding and cutting processes. For additional information on safe practices in brazing, the reader is encouraged to consult this document as well as the sources listed in the Bibliography and the Suggested Reading List at the end of this chapter.

HISTORICAL BACKGROUND

The huge demands placed on U.S. production facilities during World War II created a tremendous expansion in the use of welding processes. In mid-1943, it was recognized that some type of code or standard was needed to encourage increased safety for welding and related processes. In 1944, under the auspices of the American Standards Association, the document Safety in Electric and Gas Welding and Cutting Operations, American War Standard Z49.1, was drafted and published.

American War Standard Z49.1 was revised several times between 1950 and 1999. Each revision updated the standard in accordance with changing technology and practices. The revisions up to and including 1973 were largely evolutionary and closely preserved the format of the original standard.

In 1983, the standard underwent a major rewrite to incorporate the vast changes in welding, cutting, and allied processes that had occurred during the 40 years of the standard's existence and to clarify the patchwork presentation that had evolved during early revisions. The 1983 edition focused on safety rules to be practiced by welding, cutting, and brazing personnel and enforced by supervision and management. Material concerning building construction and piping installation, over which personnel had little control, was deleted. The 1988 and 1999 revisions followed the same philosophy.

The American Standards Association has become the American National Standards Institute, and Safety in Electric and Gas Welding and Cutting Operations, American War Standard Z49.1-1944, is now Safety in Welding, Cutting, and Allied Processes, ANSI Z49.1:2005. This edition features a new section on brazing and soldering safety.

The Occupational Safety and Health (OSH) Act of 1970 was promulgated as law to ensure safe and