Key Words—Welding safety and health, cutting, welding fumes, hazard communication, fire prevention, respirators, electric shock, eye protection, noise

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Safety in
Welding, Cutting,
and Allied Processes

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Prepared by
Accredited Standards Committee Z49,
Safety in Welding and Cutting

Secretariat
American Welding Society

Abstract
This standard covers all aspects of safety and health in the welding environment, emphasizing oxygen gas and arc welding processes with some coverage given to resistance welding. It contains information on protection of personnel and the general area, ventilation, fire prevention and protection, and confined spaces. A significant section is devoted to precautionary information, showing examples, and an extensive bibliography is included.
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Safety in Welding, Cutting, and Allied Processes

(American National Standard Z49.1:2005 uses a two-column format to provide both specific requirements and supporting information. The left column is designated as “Standard Requirements” and the right column is designated as “Explanatory Information.” The paragraph number of the Explanatory Information is preceded by the letter “E.”)

Part I
General Aspects

1. Purpose and Scope

1.1 Purpose. This standard is for the protection of persons from injury and illness and the protection of property (including equipment) from damage by fire and explosions arising from welding, cutting, and allied processes.

1.2 Scope and Applicability. This standard shall be for the guidance of educators, operators, managers, and supervisors in the safe setup and use of welding and cutting equipment, and the safe performance of welding and cutting operations.

E1.1 Beginning with the revision of 1983, the scope of ANSI Standard Z49.1 has been refocused towards those safe practices for performing welding, cutting, and allied processes, which are generally within the implementation control of the welder or the weld shop management. It is written in a manner suitable for issuance to the welder and shop management to give practical information to help them perform these functions safely. It also contains information useful to educators, industrial hygienists, engineers, and similar parties also responsible for safety and health in welding. With this refocused scope, some provisions which appeared in prior editions have been deleted. Those were provisions which dealt more in matter of building design and construction, facility pipelines, and electrical installations. Those provisions, of course, are still important and necessary and must be followed. They are not provisions usually under the immediate control of welding and cutting operations.

E1.2 Specific provisions are included for oxyfuel gas and arc welding and cutting, resistance welding, electron beam welding, laser beam cutting and welding, and brazing and soldering.

However, the requirements of this standard are generally applicable to the other welding processes such as submerged arc welding and allied processes shown in the American Welding Society Master Chart of Welding and Allied Processes, included in Annex D.)
Part II
Specific Processes

10. Oxyfuel Gas Welding and Cutting Safety

10.1 Scope. This section covers safe practices for users of oxyfuel gas welding, cutting, soldering, brazing, and related materials and equipment. It does not cover specifications for the design and construction of such equipment, nor for the construction or installation of bulk gas supply or piping distribution systems.

E10.1 Note that this applies to USERS, not manufacturers of equipment. See 1.3.