

## Historical Highlight

### Standards

The need for standards existed as long ago as 4000 B.C. when the ancient Egyptians created the royal cubit as a standard of measurement. However, accurate standards were not needed until the Industrial Revolution. This was because all manufacturing was done by individual craftspersons who were responsible for the production of their products from start to finish. The days of assembly lines and dispersed departments were yet to come. But they did come, and they brought the need for other improved technologies with them, such as much more accurate measurements. This in turn led to the discovery of the existence of variation and the knowledge that it is unavoidable. The concept of tolerance was consequently developed. It logically followed that tolerance should be written on engineering or design drawings. Drawings eventually became the primary means of communication between manufacturing departments.

Since then, there has been a slow movement toward creating a national set of standards. In 1935, the first recognized standard for drawings was published by the American Standards Association. A much more comprehensive standard was published later by the British because of the demands brought about by World War II. By the early 1950s, three groups emerged in the United States as sources for standards publications: the American Standards Association (ASA), the Society of Automotive Engineers (SAE), and the military. It was in the late 1950s that these groups started working together along with groups from Great Britain and Canada. After several years of deliberation, a combined standard finally was published by the American National Standards Institute in 1966, and it since has been updated several times.