

# Planning, Designing, and Constructing Fixed Offshore Platforms—Working Stress Design

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## Foreword

This document contains engineering design principles and good practices that have evolved during the development of offshore oil resources. Good practice is based on good engineering; therefore, this recommended practice consists essentially of good engineering recommendations. In no case is any specific recommendation included that could not be accomplished by presently available techniques and equipment. Consideration is given in all cases to the safety of personnel, compliance with existing regulations, and antipollution of water bodies. U.S. customary (USC) conversions of primary metric (SI) units are provided throughout the text of this publication in parentheses, for example, 150 mm (6 in.). Most of the converted values have been rounded for most practical usefulness; however, precise conversions have been used where safety and technical considerations dictate. In case of dispute, the SI units should govern.

Offshore technology continues to evolve. In those areas where the committee felt that adequate data were available, specific and detailed recommendations are given. In other areas, general statements are used to indicate that consideration should be given to those particular points. Designers are encouraged to utilize all research advances available to them. As offshore knowledge continues to grow, this recommended practice will be revised. It is hoped that the general statements contained herein will gradually be replaced by detailed recommendations.

Reference in this document is made to the 1989 edition of the AISC *Specification for Structural Steel Buildings—Allowable Stress Design and Plastic Design*. The use of later editions of AISC specifications is specifically not recommended for design of offshore platforms. The load and resistance factors in these specifications are based on calibration with building design practices and may not be applicable to offshore platforms. Research work is now in progress to incorporate the strength provisions of the new AISC code into offshore design practices.

In this document, reference is made to AWS D1.1/D1.1M:2010, *Structural Welding Code—Steel*. While use of this edition is endorsed, the primary intent is that the AWS code be followed for the welding and fabrication of fixed offshore platforms. However, where specific guidance is given in this API document, this guidance should take precedence.

This edition supersedes the 21st Edition dated December 2000, as well as Errata and Supplement 1 dated December 2002, Errata and Supplement 2 dated September 2005, and Errata and Supplement 3 dated October 2007. Revision bars are not used for this edition for clarity because of the extensive document reorganization outlined in the Introduction.

The verbal forms used to express the provisions in this recommended practice are as follows:

- the term “shall” denotes a minimum requirement in order to conform to the recommended practice,
- the term “should” denotes a recommendation or that which is advised but not required in order to conform to the recommended practice,
- the term “may” is used to express permission or a provision that is optional,
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