# American National Standard

## guidelines on the nuclear analysis and design of concrete radiation shielding for nuclear power plants

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# American National Standard Guidelines on the Nuclear Analysis and Design of Concrete Radiation Shielding for Nuclear Power Plants

Secretariat
**American Nuclear Society**

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## Abstract

Ordinary concrete is by far the most widely used radiation shielding material in commercial nuclear power plants. The purpose of this Standard is to provide guidance and recommendations on concrete shielding analysis and design. It is directed primarily toward shielding designers. The standard describes shielding concretes, summarizes shielding data, discusses calculational methods, and covers applications such as bulk shielding and reflection problems. Where possible, the standard makes specific recommendations; taken as a whole, it constitutes a guide to good practice in concrete shield design.

**American National Standard**

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# Foreword

(This Foreword is not a part of Guidelines on the Nuclear Analysis and Design of Concrete Radiation Shielding for Nuclear Power Plants, ANSI/ANS-6.4-1977)

The need for this Standard was identified in mid-1972 by D. K. Trubey, Chairman of Subcommittee ANS-6, Radiation Protection and Shielding. The existing standard ANSI N101.6-1972, "Concrete Radiation Shields," provides excellent guidance on the construction of concrete radiation shielding structures, but contains almost no information on shielding effectiveness or analysis. The following standard can be considered supplementary to ANSI N101.6-1972.

This Standard is meant to be a "guide to good practice" in the area of concrete shielding analysis and design. Recommendations are given where possible, but more often the choice of analytical methods must be left to the discretion of the shielding engineer as appropriate to the particular job, whether it be a conceptual design or final construction drawing.

This Standard was compiled and written by the Working Group ANS-6.4 of the American Nuclear Society, which had the following members at the time it prepared and approved this Standard:

B. A. Engholm, *Chairman, General Atomic*
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The American National Standards Committee N17, Research Reactors, Reactor Physics and Radiation Shielding, had the following membership when it reviewed and approved this standard:

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