



ANSI E1.60 – 2018

**Guidelines for the Use of Raked Stages in Live
Performance Environments**

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Interest Category Key: CP = Custom-market producer, DE = Designer, DR = Dealer/rental company, G = General interest, MP = Mass-market producer, U = User

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1 Scope (mandatory)

This standard intends to provide guidance for the use of raked stages in live performance environments. The standard intends to define a rake and to offer guidance for production elements to mitigate the risks for the protection of performers, crew members, technicians and all others accessing the raked stage. It is not intended to cover platforms or props that are mobile or flown during a production.

2 The Problem (Informative)

2.1 Raked Stages Are Prevalent

The concept of the raked stage dates back almost as far as the beginning of live entertainment productions. The concept today remains much the same as it was originally: place performers and scenery on an angled floor to provide improved site lines for the audience. This angle allows them to see performers, props and scenery upstage as prominently as those that are located downstage. Directors and producers use this concept in their creative endeavors to improve the audience experience of the production. Unfortunately, the hazards associated with the raked stage remain in the modern live entertainment industry.

2.2 Raked Stages Present Hazards

Raked stages present multiple hazards to their numerous users and user groups and therefore challenges to staff responsible for the safety of operations. Hazards associated with entering and exiting the rake affect all persons that access them. They also present safety challenges to performers, crew members, technicians and all others accessing the raked stage. These stage arrangements place musculoskeletal stresses on the back and lower extremities of the users. They require users to assume awkward postures that are neither natural nor present on horizontal surfaces. These stresses can result in chronic soft tissue injuries such as aches and pains, strains and sprains as well as potentially severe acute injuries from falls. They also contribute to accidents due to unintentional movement of props, equipment and tools. These accidents can not only cause injury but also damage the facility, scenery or equipment resulting in extended delays in production.

Ultimately raked stages present safety hazards and challenges that can result in costly injuries and accidents. These hazards must be addressed to limit injuries and interruptions to any live entertainment production using them.

3 The Solution

3.1 The Purpose of This Standard

The purpose of this Standard is to encourage people in safety management positions to accept their responsibility to provide protection against hazards from raked stages. It is also to help them successfully fulfill that responsibility. It lays out what is required to provide this protection, and offers suggestions on some of the methods that might be used.

This Standard is voluntary in nature and is not written as a compliance or enforcement document.

Users of this Standard should also refer to the current editions of ANSI E1.34, Entertainment Technology - Measuring and Specifying the Slipperiness of Floors Used in Live Performance Venues, and ANSI E1.46, Standard for the Prevention of Falls from Theatrical Stages and Raised Performance Platforms.

3.2 Language used in this Standard (mandatory)

3.2.1 "Shall," "shall not," and "shall not be" indicate mandatory requirements.