AS 4744.1:2025

Australian STANDARD®

STANDARDS Australia

Shoring and trench lining

Part 1: Design

AS 4744.1:2025

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Australian Institute Of Health & Safety
Civil Contractors Federation
Concrete Pipe Association Of Australasia
Engineers Australia
Institute Of Public Works Engineering Australasia
Monash University
Victorian Workcover Authority (Worksafe Victoria)

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Part 1: Design

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Preface

This Standard was prepared by the Standards Australia Committee ME-082, Shoring and Trench Lining, to supersede AS 4744.1—2000, *Steel shoring and trench lining equipment, Part 1: Design*.

This document specifies requirements for the safe design and rating of steel and aluminium shoring and trench lining equipment assembled completely from prefabricated components for use in excavation operations in order to protect persons, the works and adjoining areas or infrastructure from the effects of any instability of the excavated soil face and/or adjacent *in situ* soils from movement or collapse.

The major changes in this edition are as follows:

(a) Shoring and trench lining equipment designated ratings utilizing maximum rated (working) load capacities (e_k) rather than characteristic system resistance (R_k).

(b) Shoring and trench lining equipment rated (working) load capacities (e_k) to be determined based on both a uniformly distributed load and a triangularly distributed load with maximum pressure at the base of the panel.

(c) Elastic panel deflection (Δ) based on rated (working) load capacities (e_k) to be declared for both uniformly distributed load and triangularly distributed load with maximum pressure at the base of the panel and the requirement for a maximum deflection of L/60 relaxed.

The terms “normative” and “informative” are used in Standards to define the application of the appendices to which they apply. A “normative” appendix is an integral part of a Standard, whereas an “informative” appendix is only for information and guidance.

Contents

Introduction

Shoring and trench lining equipment is intended for use in temporary works to protect persons, the works and adjoining areas or infrastructure from the effects of instability of the excavated soil face and/or adjacent *in situ* soils from movement or collapse.

The purpose of this document is to provide guidance on the design of modular steel and aluminium shoring and trench lining equipment, which are the most common types of prefabricated shoring systems in use. Other materials, such as wood, composites and fibreglass, etc are not covered in this document because they have different material properties and design requirements than either steel or aluminium.

NOTE Drawings presented in this document are for illustrative purposes and are not intended for use as engineering drawings.

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Part 1: Design

Section 1 Scope and general

1.1 Scope

This document specifies requirements for the design, intended use and rating of steel and aluminium shoring and trench lining equipment assembled completely from prefabricated components for use in excavation operations. The purpose of this document is to protect persons, the works and adjoining areas or infrastructure from the effects of any instability of the excavated soil face and/or adjacent *in situ* soils from movement or collapse.

Prefabricated shoring equipment made of other materials were excluded from the scope of this document.

This document does not address the requirements for excavation ingress or egress and the associated safety elements of excavation protection systems to prevent falls or for the rescue of workers. Understanding those requirements can maximize their adoption, where practical, in shoring and trench lining equipment design. The designer is referred to the relevant Australian Standards for the specific requirements to be addressed in these matters (see Bibliography).

1.2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document.

NOTE Documents referenced for informative purposes are listed in the Bibliography.

AS 4100, *Steel structures*

AS/NZS 1163, *Cold-formed structural steel hollow sections*

AS/NZS 1554.1, *Structural steel welding, Part 1: Welding of steel structures*

AS/NZS 1594, *Hot-rolled steel flat products*

AS/NZS 1664.1, *Aluminium structures, Part 1: Limit state design*

AS/NZS 1665, *Welding of aluminium structures*

AS/NZS 3597, *Structural and pressure vessel steel — Quenched and tempered plate*

AS/NZS 3678, *Structural steel—Hot-rolled plates, floorplates and slabs*

AS/NZS 3679.1, *Structural steel, Part 1: Hot-rolled bars and sections*

AS/NZS 4600, *Cold-formed steel structures*

1.3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.