

Stairs, ladders and walkways —

Part 3: Code of practice for the design of industrial type stairs, permanent ladders and walkways

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Committees responsible for this British Standard

The preparation of this British Standard was entrusted to Technical Committee B/208, Stairs and walkways, upon which the following bodies were represented:

- British Precast Concrete Federation Ltd.
 - British Woodworking Federation
 - Consumer Policy Committee of BSI
 - Department of the Environment for Northern Ireland
 - District Surveyors' Association
 - Engineering Equipment and Materials Users' Association
 - Galvanizers' Association
 - Health and Safety Executive
 - Incorporated Association of Architects and Surveyors
 - Institution of Structural Engineers
 - London Fire and Emergency Planning Authority
 - Office of the Deputy Prime Minister (Building Regulations Division)
 - Office of the Deputy Prime Minister (Building Research Establishment)
 - Royal Institute of British Architects
 - Royal Society for the Prevention of Accidents
 - Scottish Office (Construction and Building)
 - Spiral Stair Manufacturers' Association
 - Storage Equipment Manufacturers' Association
- The following were also represented in the drafting of the standard, through subcommittees and panels:
- Coopted members

This British Standard, having been prepared under the direction of the Elements and Components (of Diverse Materials) for Buildings Standards Committee, was published under the authority of the Board of BSI and comes into effect on 29 November 1985

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The following BSI references relate to the work on this standard:
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Foreword

This British Standard has been prepared under the direction of the Elements and Components (of Diverse Materials) for Buildings Standards Committee. It is intended to give guidance for designers concerned with industrial buildings, plant and installations, including refineries.

The start and finish of text introduced or altered by Amendment No. 1 is indicated in the text by tags **[A1]** **[A1]**.

In drafting the standard the committee made extensive use of the Engineering Equipment and Materials Users' Association Handbook No. 7 "Factory Stairways, Ladders and Handrails".

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 19 and a back cover.

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1 Scope

This Part of BS 5395 gives recommendations for the design of industrial type stairs, walkways, platforms, fixed ladders and companion way ladders ^[A1] that are not addressed by BS EN ISO 14122 Part 1, Part 2, Part 3 and Part 4, which cover the following:

BS EN ISO 14122, *Safety of machinery — Permanent means of access to machinery*:

- *Part 1: Choice of a fixed means of access between two levels*;
- *Part 2: Working platforms and walkways*;
- *Part 3: Stairs, stepladders and guard-rails*;
- *Part 4¹⁾: Fixed ladders*. ^[A1]

NOTE The titles of the publications referred to in this standard are listed on the inside back cover.

2 Definitions

For the purposes of this British Standard the definitions given in BS 5395-1 and BS 5395-2, BS 5578-1 and BS 6100-1 apply, together with the following.

2.1

ladder

stair having a pitch greater than 65°

2.2

fixed ladder

ladder having a pitch greater than 75° with rungs

2.3

companion way ladder

ladder having a pitch from 65° to 75° inclusive, with steps

2.4

platform

level floor above the level of the surrounding area

2.5

walkway

lateral access, e.g. from one section of plant or equipment to another

NOTE Definitions of some common terms are illustrated in Figure 1.

^[A1]

¹⁾ In preparation. ^[A1]

3 General

When assessing the type of access or means of escape to be provided, the designer should take into account all the factors listed in Table 1. The design characteristics should be uniform in any given installation.

Table 1 — Factors affecting choice of means of access or escape

Factor to be considered	Remarks
Height of building or storey height	Height governs number of flights (see 5.1), rise (see 5.4) and clearance and headroom
Plan area	Plan area governs going and clear width (see 5.2) Helical and spiral stairs require less space on plan than straight stairs
Convenience of use and safety	Straight stairs give maximum convenience of use. Where loads are being carried regularly, stairs should be used rather than ladders
Number of people	The number of people governs the size and the loading (see 8.2)
Frequency of use	Ladders should only be installed where occasional access is required. A companion way ladder should be used in place of a fixed ladder on short rises of 3 m or less
Extent of supervision and control	
Access for disabled	See BS 5810
Fire	See BS 5588-1, BS 5588-2 or BS 5588-3 as appropriate

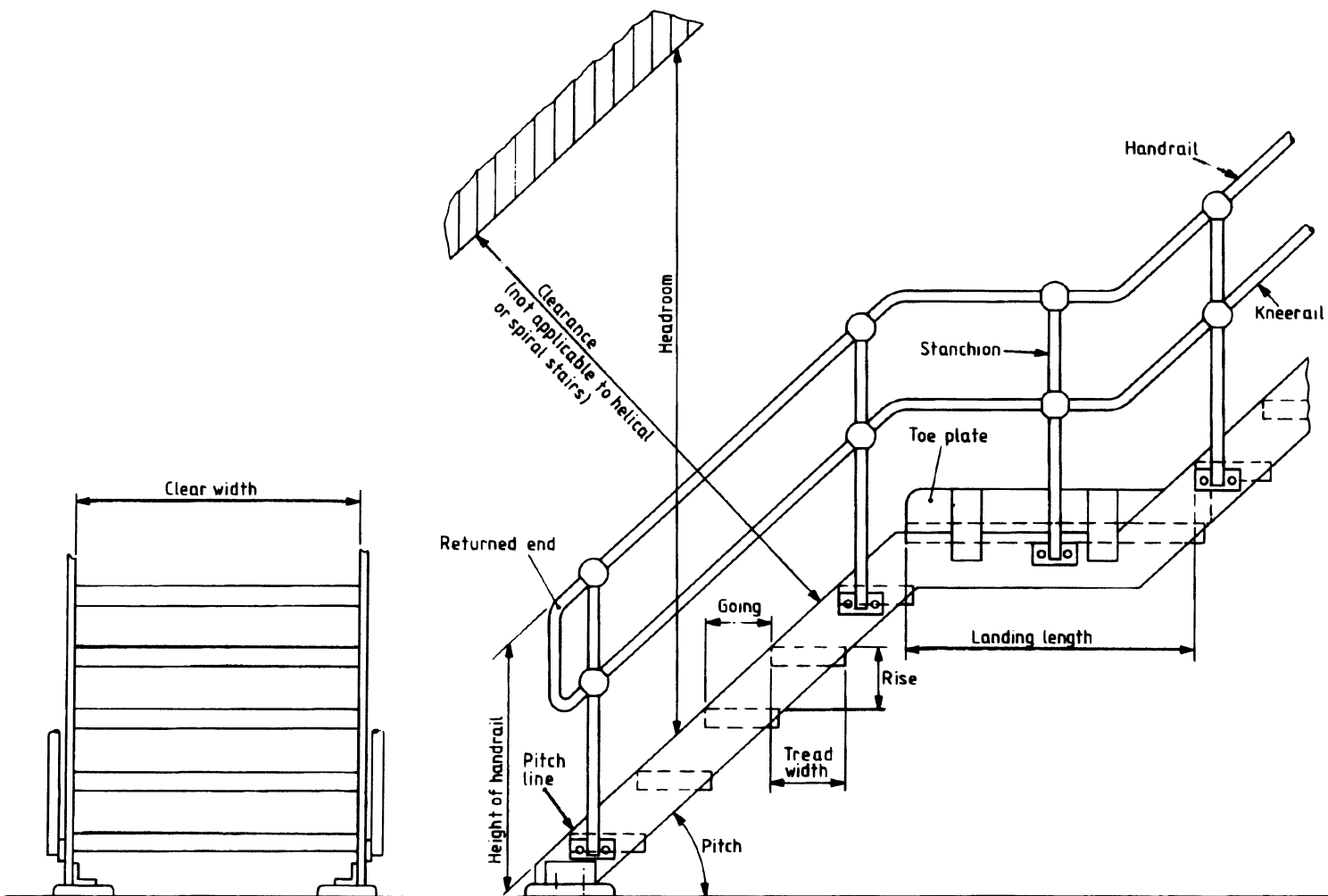


Figure 1 — Basic components and definitions of terms

4 Materials

Materials should be selected from those listed in Table 2 and should be in accordance with the appropriate British Standard or code of practice.

Where two or more materials are used, they should be compatible, e.g. to minimize galvanic action or differential movement.

For guidance on protection against corrosion, see BS 5493, BS 6150 and DD 24.

5 Stairs

5.1 General

Except where otherwise indicated in this clause, the recommendations given in BS 5395-1 for straight stairs and in BS 5395-2 for helical and spiral stairs should be followed.

The maximum number of risers in a single flight should be 16, for straight stairs, or 22, for helical and spiral stairs.

There should be a change of line or direction of not less than 30° after 32 risers, for straight stairs, or 44 risers, for helical or spiral stairs. Landings at the head of a stair should be designed so that it is not possible to step from a platform or walkway onto the stair without a change in direction.

Typical industrial stairs are shown in Figure 2.

5.2 Clear width

The minimum clear width should be 600 mm for occasional one-way traffic, 800 mm for regular one-way traffic and occasional two-way traffic and 1000 mm for regular two-way traffic.

5.3 Pitch (straight stairs)

The minimum pitch for straight stairs should be 30°.

The maximum pitch for occasional access should be 42°.

The maximum pitch for regular two-way traffic should be 38°.