

Methods of test for
**Falsework
equipment —**

Part 1: Floor centres

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- Department of the Environment, Building Research Station*
- Federation of Civil Engineering Contractors
- Federation of Manufacturers of Construction Equipment and Cranes
- Health and Safety Executive*
- National Association of Scaffolding Contractors*
- National Federation of Building Trades Employers*
- Royal Institute of British Architects
- Truck and Ladder Manufacturers' Association

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- Aluminium Federation
- British Steel Industry
- Confederation of British Industry
- Construction Health and Safety Group
- Construction Industry Training Board
- Department of the Environment (PSA)
- Incorporated Association of Architects and Surveyors
- Institution of Civil Engineers
- Institution of Municipal Engineers
- Institution of Structural Engineers
- Prefabricated Aluminium Scaffolding Manufacturers' Association

This British Standard, having been prepared under the direction of the Builders' Plant and Equipment Standards Committee, was published under the authority of the Executive Board on 31 August 1977

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Contents

	Page
Cooperating organizations	Inside front cover
Foreword	ii
1 Scope	1
2 Reference	1
3 Principles	1
4 Test arrangement and apparatus	2
5 Testing procedure	3
6 Interpretation	4
7 Test report	4
Appendix A Checking previously used floor centres	5
Appendix B Basic considerations	5
Appendix C Uses of test report	6
Figure 1 — Test 1 (for bending moment and deflection)	6
Figure 2 — Test 2 (for shear and support forces)	7
Figure 3 — Test 3 (for interaction forces at lapped joint)	8
Figure 4 — Test 4 (for intermediate propping force)	8
Figure 5 — Cross sections at loading points	9
Figure 6 — Support details in tests 1, 2 and 3	9
Publication referred to	Inside back cover

Foreword

The need to establish accurately the structural properties of equipment has become more important, and in consequence, the need to have satisfactory test methods. These should relate as closely to practice as possible and be completely reproducible. This British Standard, prepared under the direction of the Builders' Plant and Equipment Standards Committee, is the first of a series of test methods for common types of falsework equipment.

Floor centres are usually of lattice construction with each unit consisting of two or more sections telescoping one within another. There are many practical difficulties in assessing the strength and other related properties of these units by analytical approach alone and it has become customary for the users to rely on safe load tables and other information largely based on test results and published in the suppliers' literature.

At present in the UK there is no generally recognized method of conducting these tests or interpreting their results. It is hoped the tests described here will provide a common and verifiable basis for the determination of structural properties. Using appropriate safety factors, load/span tables can be prepared. These methods can also be used as a design tool when developing a new or modified type of floor centre, as an aid in quality control in production and for assessing the degree of serviceability of used floor centres.

Guidance on the application of test 1 to the last kind is given in Appendix A.

Guidance on which tests to use in particular circumstances is obtainable from Appendix B, which sets down the basis on which tests were formulated.

Appendix C suggests how the test data may most usefully be interpreted for the user.

At least two tests of each type should normally be undertaken.

The material of which the samples tested are made will sometimes have significantly better properties than the minimum required by its specification. Thus the test results from such samples will give optimistic results for the equipment. Consideration was given to adjusting the results based on the relationship of minimum strength expected and that of the critical part of the centre. However, owing to the difficulty of setting down a precise and reliable method for local testing and adjustment of the properties it was not possible to include this proposal.

Successful use of this standard method will produce more meaningful data from fewer tests. It is hoped users will record problems so that if necessary improvements can be made in due course.

The test methods specified in this standard provide information for the great majority of requirements. Where other tests are needed the information given will be of direct use in formulating them.

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Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 10, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

1 Scope

Four tests are specified for establishing the structural properties of floor centres in respect of bending strength, deflection, shear, strength at the overlap and the effect of propping from below. These can be used both for initial assessment, and to assess used equipment. Metallurgical examination is not considered.

2 Reference

The title of the publication referred to in this standard is shown on the inside back cover.

3 Principles

3.1 Symbols and subscripts. The following are the meanings of the main symbols and subscripts used in this standard.

Symbols

<i>a</i>	length of the horizontal part of the bearing tongue [see Figure 6(a)].
<i>b</i>	horizontal distance between the support face (at the root) of the bearing tongue and the centre of the end bearing [see Figure 6(a)].
<i>c</i>	clearance between a loading platform and the adjacent section (see Figure 3).
<i>d</i>	dimension of a loading platform along the centre line of the unit (see Figure 1, Figure 2 and Figure 3).
<i>k</i>	clear distance between the ends of two non-adjacent sections in a three section unit (see Figure 4).
<i>l</i>	overall length of the floor centre excluding the horizontal parts of the bearing tongues [see Figure 1, Figure 2, Figure 3 and Figure 6(a)].
<i>P</i>	test load applied through one loading platform or loading beam to two units (see Figure 1, Figure 2, Figure 3 and Figure 5).
δ	the deflection of the points specified in various tests, calculated or observed as appropriate.
δ_m	deflection of the top surface at the centre of the span in tests 1, 2 and 3 with reference to the ends.
δ_p	the deformation remaining, in test 4, when the load is removed.

Subscripts

max and min	refer to the maximum and minimum extension of the units.
i	initial reading.
m	at the centre.
P	permanent deformation.
1 to 4	refer to the tests of these numbers.
ult	the figure at failure.

The meanings of other symbols used are given in the text.

3.2 Definition. For the purposes of this Part of BS 5507 the following definition applies.

floor centre

an adjustable metal beam of two or more telescoping sections usually of lattice construction used to support soffit formwork. Its use is structural

3.3 Accuracy of readings and tolerances.

test loads, deflections and spans should be measured within the following limits.

- a) $\pm 0.04 P$ or $\pm 0.02 P_{ult}$ whichever is the more restrictive for the test load P ;
- b) ± 1 mm for the central deflection δ_m ;
- c) ± 0.2 mm for the local deformation δ_p ;
- d) ± 5 mm for the clear span l ;
- e) ± 2 mm for the dimension locating the bearer tongue support b .

3.4 Sampling. Before setting up the tests, the tester shall identify the specimens by comparing them with drawings and other documents supplied by the organization requesting the test and note complete agreement on points of discrepancy. The compliance shall be within specified or implied tolerance limits and include dimensions, weight, form and construction details. The purpose of this inspection is to ensure that the units tested are representative samples of the group and to allocate to them an appropriate identification reference.

3.5 Preparation of specimens. Units shall be tested with fixing components such as bolts, turnbuckles, pins and wedges in position and fully tightened up in accordance with instructions for use from the supplier so as to eliminate slackness at joints and thus achieving maximum camber.