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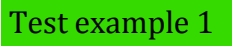


BSI Standards Publication

**Code of practice for temporary works procedures
and the permissible stress design of falsework**

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-  **Test example 1** — indicates added text (in green)
- ~~Test example 2~~ — indicates removed text (in red)
-  — indicates added graphic figure or table
-  — indicates removed graphic figure or table

About tracked changes

This document is a combined PDF containing a “tracked changes” version of BS 5975, which compares BS 5975:2019 with BS 5975:2008+A1:2011.

The original version of BS 5975:2019, appended at the end of this document, should be considered the version of record for this publication.

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Date	Text affected
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Code of practice for temporary works procedures and the permissible stress design of falsework

Version comparison

This version comparison compares where new and revised clauses are located between BS 5975:2019 and BS 5975:2008+A1:2011.

BS 5975:2019 to BS 5975:2008+A1:2011

BS 5975:2019		BS 5975:2008+A1:2011	
	Foreword		Foreword
	Introduction		NEW
	Section 1: General		Section 1: General
1	Scope	1	Scope
2	Normative references	2	Normative references
3	Terms and definitions	3	Terms and definitions
4	Abbreviations and symbols	4	Abbreviations and symbols
5	Overview of temporary works procedures and training		NEW
5.1	Overview of procedures		NEW
5.2	Training		NEW
	DELETED	5	Legislation
	DELETED	5.1	General
	DELETED	5.2	The Health and Safety at Work, etc. Act 1974
	DELETED	5.3	The Management of Health and Safety at Work Regulations 1999
	DELETED	5.4	The Personal Protective Equipment at Work Regulations 1992
	DELETED	5.5	Work at Height Regulations 2005 as amended by the Work at Height (Amendment) Regulations 2007
	DELETED	5.6	The Lifting Operations and Lifting Equipment Regulations 1998

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DELETED	5.8	Construction (Design and Management) Regulations 2007
Section 2: Procedural control of temporary works	Section 2: Procedural control of temporary works	
6	6	Procedures
6.1	NEW	
6.2	NEW	
DELETED	6.1	General
DELETED	6.2	Control of procedures
DELETED	6.3	Roles and responsibilities of organizations
7	NEW	
7.1	NEW	
7.2	NEW	
7.3	NEW	
7.4	NEW	
DELETED	7	Appointment of the temporary works co-ordinator and the temporary works supervisor
DELETED	7.1	Appointment of the temporary works co-ordinator
DELETED	7.2	Responsibilities of the temporary works co-ordinator
DELETED	7.3	Appointment of the temporary works supervisor(s)
DELETED	7.4	Responsibilities of the temporary works supervisor(s)
8	NEW	
8.1	NEW	
8.2	NEW	
8.3	NEW	
8.4	NEW	
8.5	NEW	
DELETED	8	Design brief

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9.1	Organizational interfaces	6.4	Organizational interfaces
9.2	Contractors' DI		NEW
9.3	Responsibilities		NEW
9.4	Principal contractor		NEW
9.5	Contractors other than PC		NEW
9.6	Third-party employed contractor		NEW
	DELETED	9	Design
	DELETED	9.1	General
	DELETED	9.2	Design check
	DELETED	9.3	Avoidance of progressive collapse
	DELETED	9.4	Choice of temporary works solution
	DELETED	9.5	Selection of materials and components
10	Supplier/manufacturer procedures		NEW
10.1	Suppliers of temporary works equipment		NEW
10.2	Suppliers' DI		NEW
10.3	Suppliers' procedures		NEW
10.4	Verification of design information		NEW
10.5	Provision of information		NEW
10.6	Provision of design data		NEW
10.7	Provision of information for the safe use of equipment		NEW
10.8	Standard solutions		NEW
	DELETED	10	Co-ordination and supervision of work on site
11	Temporary works co-ordinator		NEW
11.1	General		NEW
11.2	The PC's TWC		NEW
11.3	The TWC (other than the PC's TWC)		NEW

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DELETED	11.1	General
DELETED	11.2	When to check
12	Temporary works supervisor	NEW
12.1	General	NEW
12.2	Role of the TWS	NEW
12.3	Duties of the TWS	NEW
DELETED	12	Alterations
13	Design of temporary works	NEW
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13.4	Choice of temporary works	NEW
13.5	Selection of materials and components	NEW
13.6	Design output	NEW
13.7	Design check	NEW
13.8	Resolution of queries raised by the design checker	NEW
13.9	Alterations	NEW
13.10	Standard solutions	NEW
DELETED	13	Loading (bringing) the temporary works (into service)
14	Site considerations	NEW
14.1	Co-ordination, supervision and checking of work on site	NEW
14.2	Loading and unloading temporary works	NEW
14.3	Dismantling	NEW
DELETED	14	Dismantling
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15	General	15 General

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17	Loads applied to falsework	17	Loads applied to falsework
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19.2	Forces applied to falsework	19.2	Forces applied to falsework
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Annex B (normative)	Properties of components in tube and coupler falsework	Annex B (normative)	Properties of components in tube and coupler falsework
Annex C (normative)	Initial testing, quality control and inspection of falsework equipment	Annex C (normative)	Initial testing, quality control and inspection of falsework equipment
Annex D (normative)	Data on material properties	Annex D (normative)	Data on material properties
Annex E (normative)	Wave forces	Annex E (normative)	Wave forces
Annex F (normative)	Site investigations for foundations for falseworks	Annex F (normative)	Site investigations for foundations for falseworks
Annex G (informative)	Examples of design brief contents	Annex G (informative)	Examples of design brief contents
Annex H (informative)	Forces from concrete on sloping soffits	Annex H (informative)	Forces from concrete on sloping soffits

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Annex J (normative) Design of steel beams at points of reaction or concentrated loads	Annex J (normative) Design of steel beams at points of reaction or concentrated loads
Annex K (normative) Effective lengths of steel members in compression	Annex K (normative) Effective lengths of steel members in compression
Annex L (informative) Wind calculations for falsework	Annex L (informative) Wind calculations for falsework
Annex M (normative) Shielding factor η for unclad falsework	Annex M (normative) Shielding factor η for unclad falsework
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Supersession

This British Standard supersedes BS 5975:2008+A1:2011, which is withdrawn.

Information about this document

~~The start and finish of text introduced or altered by Amendment No. 1 is indicated in the text by tags  .~~

~~A report on falsework by the Joint Committee of the Institution of Structural Engineers and the Concrete Society [1] was published in 1971, following a number of significant collapses and an apparent lack of authoritative guidance.~~



~~A further significant collapse of falsework (over the river Loddon, near Reading) occurred in October 1972, resulting directly in the publication of the Bragg Report [2] in 1973/74.~~

~~This code of practice was first published in 1982. It reflected the recommendations of the Bragg Report [2] and used, as the main reference document during the drafting stages, the report on falsework by the Joint Committee of the Institution of Structural Engineers and the Concrete Society [1].~~

~~It is believed that when first published, no previous standard or code referring to falsework was known to exist anywhere in the world.~~

~~The standard drew together all those aspects that need to be considered when preparing a falsework design using permissible stress methods, and in so doing included recommendations for materials, design and work on site. Because the success of falsework is closely tied up with its management, this code described procedures as well as technical aspects. The standard provided guidance on the accuracy of construction required in order to be able to adopt the recommended design approaches.~~

~~Recommendations were given on the actions that ought to be taken and possible ways of allocating the duties to individuals. The Bragg Report [2] recommended that the duty of ensuring that all the relevant procedures and checks are carried out be given to one individual in the construction organisation, such an individual being known as the "temporary works co-ordinator". BS 5975:1982 endorsed such action, but adopted the narrower term "falsework co-ordinator", because the procedures section of the code did not consider the other activities covered by the general term temporary works, such as scaffolding and excavations. This edition, incorporating procedures for all temporary works, has reverted to the term "temporary works co-ordinator". A full description of the duties of the temporary works co-ordinator is included.~~

~~ This standard re-emphasizes the Bragg Report [2] recommendations that the temporary works co-ordinator be an individual employed by the construction organization now known as the principal contractor, or on projects which are not notifiable under CDM 2007 [8], the main contractor. This principle is similarly preferred for the appointment of any temporary works supervisor. .~~

~~A second edition of the standard was published in 1996.~~

This is a revision of Section 1 and Section 2 of this British Standard. Section 3 on the permissible stress design of falsework remains unchanged. The following principal changes have been introduced in this revision.

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procedures for clients, permanent works designers and temporary works designers to adopt. The detail on these procedures is now included.

- The text has been updated to take account of the Construction (Design and Management) Regulations 2015 (CDM) [1], particularly in respect to the interface between the design of permanent works and the design of temporary works.
- The terms and definitions have been updated.
- The principal contractor's temporary works co-ordinator (PC's TWC) retains overall responsibility for the temporary works on the site, but where another contractor manages their own temporary works within that site, they have their own procedures and appoint their own TWC. The committee understood that some organizations were using the temporary works supervisor (TWS) of sub-contractors to act as de-facto TWCs but this is incorrect and the text has been changed to reflect this.
- Section 2 has been updated to include recommendations for designers on the partial factors to be used in limit state design of temporary works and on design considerations to be applied for all temporary works design.
- Although a full revision of Section 3 has not been undertaken at this point, an important safety point was brought to the committee's attention and a relevant note has been added in 16.3.5.

The following matters, from the partial revision in 2011, were re-considered and it was confirmed they were to be retained in this revision.

The European standard on falsework, BS EN 12812:2004 was published in 2004 and, exists in parallel with this standard British Standard. It specifies performance requirements for the design of falsework in accordance with one of three classes: A, B1 and B2. Limit state design methods are specified for design classes B1 and B2. It does not provide guidance for the structural design of Class A. It is recommended that Section 3 is used to provide guidance for Class A falsework.

BS EN 12812:2004 does not provide guidance on procedures necessary for the successful management of work on site. The recommendations of the Advisory Committee on Falsework (the Bragg Report [2]) in respect of the falsework temporary works co-ordinator have not been included in it BS EN 12812.

The foreword of this standard was amended in 2004, immediately following the publication BS EN 12812:2004.

^{A2}Subsequent to the publication of revision of BS EN 12812, this British Standard was updated in 2011, to BS EN 12812:2008 BS 5975:2008+A1:2011, and, the drafting committee has taken the opportunity to update the majority of this standard, retaining the principles of permissible stress design. The principal changes introduced by this amendment are were as follows.

- The term temporary works co-ordinator (TWC) has been was adopted to reflect the need for procedural controls of all temporary works and to recognize that the majority of contractors already control temporary works in this manner.
- Compliance with the Construction (Design and Management) Regulations 2007 (COM) [3], [8] has been incorporated, particularly in respect to the interface between the design of permanent works and the design of temporary works.
- This amendment to BS 5975 introduces wind loading to BS EN 1991-1-4:2005+A1 and the UK National Annex (NA). The background information in PD 6688-1-4:2009 has also informed this revision.

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defines the conditions for top restrained and free standing raisework and the dependency of the former on the stability of the permanent works and plate action of the formwork.

Although ~~the wind code~~ BS EN 1991-1-4:2005+A1:2010 is widely applicable, its application in accordance with ~~its National Annex~~ (NA to BS EN 1991-1-4:2005+A1:2010) restricts its use to the UK. For other locations covered by BS EN 1991-1-4:2005+A1, ~~users can~~ refer to the relevant National Annex. For locations outside of those covered by BS EN 1991-1-4:2005+A1, local design codes ~~are to~~ ~~can~~ be used to calculate the peak velocity pressure.

Users of this ~~standard~~ ~~British Standard~~ are reminded that it might be necessary for them to appraise third parties, with whom they are ~~not~~ in contractual relations, of certain provisions in ~~the~~ ~~this~~ code ~~of~~ ~~practice~~. ~~A1~~

Use of this document

As a code of practice, this British Standard takes the form of guidance and recommendations. It should not be quoted as if it were a specification and particular care should be taken to ensure that claims of compliance are not misleading.

Any user claiming compliance with this British Standard is expected to be able to justify any course of action that deviates from its recommendations.

It has been assumed in the preparation of this British Standard that the execution of its provisions will be entrusted to appropriately qualified and experienced people, for whose use it has been produced.

Presentational conventions

The provisions ~~in~~ ~~of~~ this standard are presented in roman (i.e. upright) type. Its recommendations are expressed in sentences in which the principal auxiliary verb is "should".

Commentary, explanation and general informative material is presented in smaller italic type, and does not constitute a normative element.

Where words have alternative spellings, the preferred spelling of The Shorter Oxford English Dictionary is used (e.g. "organization" rather than "organisation").

Contractual and legal considerations

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 cannot confer immunity from legal obligations.

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Introduction

This British Standard was first published in 1982. It reflected the recommendations of the Bragg Report [2] and used, as the main reference document during the drafting stages, the report on falsework by the Joint Committee of the Concrete Society and the Institution of Structural Engineers [3]. These two reports were published in the 1970s following a number of significant collapses and an apparent lack of authoritative guidance.

The standard drew together all those aspects that need to be considered when preparing a falsework design using permissible stress methods, and in so doing included recommendations for materials, design and work on site. Because the success of temporary works is closely tied up with its management, this British Standard describes procedures as well as technical aspects. The standard provides guidance on the accuracy of construction required in order to be able to adopt the recommended design approaches.

Recommendations are given on the actions that ought to be taken and possible ways of allocating the duties to individuals. The Bragg Report [2] recommended that the duty of ensuring that all the relevant procedures and checks are carried out be given to one individual in the construction organization, such an individual being known as the "temporary works co-ordinator". BS 5975:1982 endorsed such action, but adopted the narrower term "falsework co-ordinator", because the procedures section of the standard did not consider the other activities covered by the general term temporary works, such as scaffolding and excavations. The 2008 edition, incorporating procedures for all temporary works, reverted to the term "temporary works co-ordinator".

At the time of publication of the Bragg Report [2] the construction industry was very different from the industry we know today. Health and safety legislation was just beginning to bring improvements on sites. There was little sub-contracting of construction work and most trades were carried out by the main contractor's operatives.

Today very little construction work is carried out by the main contractor, now known as the principal contractor (PC), and in relation to health and safety legislation, the Construction (Design and Management) Regulations 2015 (CDM) [1] recognize the various contractors and sub-contractors which might be on site. The CDM Regulations require whoever appoints the PC, contractor or sub-contractor to check that the organization is competent to do the work. The organizations which are appointed also need to plan, manage and monitor their own work.

This philosophy was taken into account during this revision of BS 5975, to keep it aligned with health and safety legislation, and allow the contractors and sub-contractors to plan, manage and monitor their own work if they have the skills, knowledge, experience and organizational capability. The PC has overall responsibility for work on site and in keeping with the recommendations in the Bragg Report [2], the PC's temporary works co-ordinator (PC's TWC) has overall responsibility for all temporary works on the site, including those of contractors appointed by the client. With this in mind, procedures specific to other organizations, such as clients, designers, contractors and sub-contractors, and other roles have been introduced whilst ensuring responsibility is traceable from the PC's TWC to the PC's temporary works DI to the PC's board of directors.

The Bragg Report [2] made recommendations about courses on civil engineering, which B/514/26, the committee responsible for this British Standard, believe to be as relevant today as when they were written. This standard therefore endorses the Bragg Report recommendations.

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Section 1: General

1 Scope

This British Standard gives recommendations and guidance on the procedural controls to be applied to all aspects of temporary works in the construction industry. It also includes guidance on design, specification, construction, use and dismantling of falsework. This standard gives guidance on permissible stress design of all falsework. This guidance is also applicable to the design of what is termed class A falsework¹⁾ defined in BS EN 12812:2004, the design of which is specifically excluded from BS EN 12812:2004.

Section 1 gives recommendations in relation to training and education.

Section 2 gives recommendations for the procedures required to ensure that temporary works are conceived, designed, specified, constructed, used and dismantled all in a safe and controlled manner suitable for all construction projects. These procedures include clauses relating to all roles involved in temporary works: clients, permanent works designers, temporary works designers, contractors (including construction management organizations), suppliers and manufacturers.

Construction sites and methods adopted for controlling the temporary works vary. This British Standard recognizes that the extent of control measures required are greater on the larger or more complex projects, as can be encountered on major infrastructure projects, power stations, airports etc. Generally procedures are to be in accordance with this standard but additional client specific procedures might be required on major infrastructure projects.

Section 3 covers the design of temporary works and in particular the design of falsework and relevant formwork. In addition Section 3 covers: materials including material factors; loads and load factors; design of falsework, including both proprietary equipment and traditional scaffolding solutions; wind loading (reference to temporary and permanent stability) and reference to other British Standards for the design of structural steelwork, reinforced concrete and excavation support. Although Section 3 was written for permissible stress design, the design concepts and the service loads stated are applicable to limit state design. The loads, including wind loads, are the unfactored service loads and conform to both BS EN 1991-1-4 and BS EN 12812.

The structural design element in this standard British Standard is additional information necessary for the structural design of falsework. It can be used in conjunction with existing structural standards.

2 Normative references

The following referenced documents are indispensable for referred to in the application text in such a way that some or all of their content constitutes provisions of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

BS 449-2:1969, (withdrawn), *Specification for the use of structural steel in building — Part 2: Metric units*

BS 648, (withdrawn), *Schedule of weights of building materials*

1 According to BS EN 12812 states that design class A is only to be adopted where: a) slabs have a cross-sectional area not exceeding 0.3 m² per metre width of slab; b) beams have a cross-sectional area not exceeding 0.5 m²; c) the clear span of beams and slabs does not exceed 6.0 m; d) the height to the underside of the permanent structure does not exceed 3.5 m.

2 As Section 3 has not been updated as part of this revision, it refers to some standards which have now been withdrawn. These have been marked as such.