BS 8000-0:2014

BSI Standards Publication

Workmanship on construction sites –

Part 0: Introduction and general principles

bsi.

...making excellence a habit.™

Publishing and copyright information

Published by BSI Standards Limited 2014

ISBN 978 0 580 81444 0

ICS 91.200

The following BSI references relate to the work on this document:
Committee reference B/209
Draft for comment 13/30275704 DC

Publication history

First published January 2014

Amendments issued since publication

Date	Text affected

Contents

Summary of pages

This document comprises a front cover, an inside front cover, pages i to ii, pages 1 to 18, an inside back cover and a back cover.

Foreword

Publishing information

This part of BS 8000 is published by BSI Standards Limited, under licence from The British Standards Institution, and came into effect on 31 January 2014. It was prepared by Technical Committee B/209, *General building codes*. A list of organizations represented on this committee can be obtained on request to its secretary.

Supersession

This part of BS 8000 partially supersedes some general aspects currently covered in the following individual parts of the series: BS 8000-1:1989, BS 8000-2.1:1990, BS 8000-2.2:1990, BS 8000-3:2001, BS 8000-4:1989, BS 8000-5:1990, BS 8000-6:2013, BS 8000-7:1990, BS 8000-8:1994, BS 8000-9:2003, BS 8000-10:1995, BS 8000-11:2011, BS 8000-12:1989, BS 8000-13:1989, BS 8000-14:1989, BS 8000-15:1990 and BS 8000-16:1997+A1:2010.

Relationship with other publications

BS 8000 is a series of standards describing the execution of works for a range of construction activities. They are issued to fill a gap in the authoritative information that is available to those specifying and assisting in the description of processes to ensure better construction quality. The various parts of BS 8000 draw content from, and relate to, other relevant British Standards and codes.

This part of BS 8000 provides a context for the activities described in the individual parts, encouraging liaison and awareness of the adjoining/dependent trades and processes in the construction sequence (whether or not they are subject to one of the specialist titles in the series).

Use of this document

As a code of practice, this part of BS 8000 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 part of BS 8000 is expected to be able to justify any course of action that deviates from its recommendations.

Presentational conventions

The provisions 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.

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.

Introduction

It is generally accepted and has been demonstrated over time that good general supervision and control of a process is beneficial to achieving quality and reducing waste and cost (e.g. by reducing re-work). In order to do this it is important to have good reference standards. This is the main rationale behind the BS 8000 series of standards (see Annex A for a full list of these standards).

This part of BS 8000 sets the scene for the next generation of these standards, including a change of title from "building sites" to the more general "construction sites". While this will initially create a minor titling anomaly between this and the other parts, it is expected that future revisions of the various parts of BS 8000 will adopt this change in titling.

1 Scope

This British Standard establishes the general principles behind the BS 8000 series of standards that cover workmanship in the execution of certain works on construction sites. It includes general principles of issues such as tolerance, accuracy, fit, preparation of materials, interdependencies between trades, and draws attention to certain health and safety issues.

It gives links with the Uniclass system (see Annex A) to provide a common referencing structure with other documentation.

NOTE 1 Individual parts of BS 8000 might refer to the Competent Person Schemes in respect of regulatory requirements and to Green Deal requirements.

NOTE 2 A list of titles in the BS 8000 series is included in Annex A.

2 Health and safety

*COMMENTARY ON CLAUSE **2***

Attention is drawn to existing health and safety legislation, including The Construction (Design and Management) Regulations 2007 (CDM) [1].

All health and safety procedures, protocols and guidance related to construction operations that a construction site has in place should be complied with at all times.

NOTE Annex B lists health and safety issues highlighted in general guidance from the HSE. This is intended as a convenient prompt to users of this standard (and its other parts), not as a comprehensive list of health and safety issues. For more detailed information on health and safety issues, see www.hse.gov.uk.

3 Accuracy

3.1 General

*COMMENTARY ON **3.1***

Each of the individual parts of BS 8000 deal with the trade, material and other particular issues to do with accuracy and fit in the completion of that work.

The issue of accuracy should be addressed in the following ways:

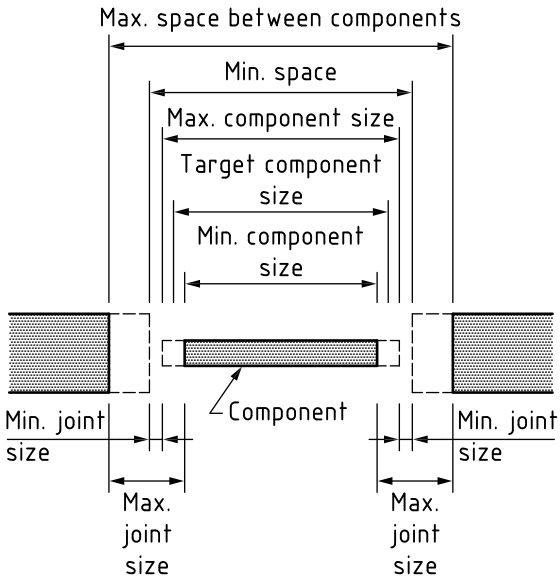
- from a functional perspective: for example, structural integrity is likely to be dependent on achieving a certain degree of accuracy and fit;
- from a durability (longevity) perspective: for example, poorly fitting components might accelerate weathering damage;

- from an appearance perspective: for example, where panel components that are clearly intended to align fail to do so.

NOTE 1 All of the above are important but expectations and relative importance can vary and emphasis might shift depending on the type of work and type of project and the quality required. In any process there is some degree of dimensional variability and the magnitude of this variability alters from process to process and is generally characteristic of that process.

NOTE 2 Figure 1 illustrates the principles involved in considering accuracy in terms of tolerances and fit.

Figure 1 **Dimensional variability for components, prepared space and joints**



NOTE Adapted from BS 5606:1990, Figure 3.

3.2 Specifying accuracy

*COMMENTARY ON **3.2***

Specifying accuracy is important as often no specific parameters are enumerated in contract documents (such as drawings or specifications) but are either specified by references to standards, manufacturers' installation instructions, other authoritative guidance or "good practice". In the absence of any reference, the legal principle of "normal skill and care" applies.

Accuracy should be specified by the designer.

Where better than normal degrees of accuracy are required by operations on a particular project or in a particular element of construction, this should be made clear; for example the casting-in of critical fixings into concrete (functionality) or the flatness of a floor finish (longevity and appearance) or the gaps between wall tiles (appearance). The requirements for degrees of accuracy should be stated within drawings and/or specifications so that allowance can be made.

3.3 Achieving accuracy

All requirements for accuracy should be complied with.

NOTE Achieving accuracy is a process issue which will include fully understanding the design intent. For example, a critical fixing in concrete might be more reliably achieved from a process point of view by an alternative to "casting-in" and normally, provided the performance, functional and visual aspects of the design can be assured, such an alternative process will be permitted.

3.4 Nominal dimensions

Dimensions that are either given or are normally expressed as "nominal" should be accommodated in designs and allowed for in assembly and construction.

NOTE Timber sizing is an example where nominal dimensions are very often cited. Generally the effects of this inherent variability, between the nominal size and the actual size of a delivered component, is a process issue but only within limits which are practically achievable. For example, if a construction is specified using nominally sized timber it is not reasonable to design the adjoining constructions so as to not be able to absorb the likely variation (e.g. nominal dimensions for timber over 100 mm in BS 5606 are –2 mm to +4 mm of variation in section dimensions). Any components or designed spaces abutting such a section cannot of themselves have critical dimension that will not accommodate this.

3.5 Grid lines and setting out

*COMMENTARY ON **3.5***

It is common practice in construction design to relate dimensions to grid lines. However, while this might be clear on a paper drawing or a 3D rendering, as construction sites become more congested as they progress and sight lines become obscured this practice becomes less practical to translate into setting-out processes. Establishing reasonably accessible horizontal and vertical lines and datum points is generally the responsibility of the principal construction contractor with subsequent setting out the responsibility of the specialist or trade contractor.

It should be made clear to all concerned where responsibility lies for establishing useful line and level setting out points/planes for both current and following operations.

Appropriate setting out procedures should be applied along with systematic recording, reporting and monitoring of the accuracy achieved during construction. Measuring and other setting out equipment commensurate with the degree of accuracy required should be used.

4 Materials handling and preparation for work

4.1 Receipt

*COMMENTARY ON **4.1***

The individual parts of BS 8000 deal with particular requirements as some of the work sections will have different or particular methods of dealing with materials receipt, for example sample moisture testing of delivered timber.

The delivery of materials and components should be arranged to minimize handling and site congestion. Precautions should be taken to guard against the possibility of damage.

Purchase and supply contracts might have their own particular conditions but generally materials from third parties should be inspected to confirm that the delivery is what was ordered and/or specified and to confirm as far as is reasonably possible, quality, viability (e.g. shelf life), conformity (e.g. CE mark where appropriate) and type. Delivery documentation, including any third party certification, should be checked and the delivery then signed for.

Where operatives will be working with client supplied materials or materials purchased by another organization in the supply chain (for example a general construction contractor), similar inspection and acceptance/rejection should be applied. When using bulk materials such as sands and aggregates, where particular types of similar appearance but different properties to others are potentially available, all efforts should be taken to verify the correct one for the purpose and consistency maintained. Where any non-compliance or other deficiency is evident the supplier should be referred to immediately.

4.2 Handling

*COMMENTARY ON **4.2***

The individual parts of BS 8000 deal with particular requirements as some of the work sections will have different or particular methods for handling of materials.

4.2.1 General

Waste from packaging, protective materials and offcuts can occur at several stages during handling, pre-assembly and installation and should be avoided or minimized, and the work area should be kept clear, clean and tidy at all stages.

4.2.2 Mechanical handling

Where mechanical handling is employed, risk assessment procedures should be followed. These should include references to but not be limited to:

a) following all equipment manufacturer's instructions, including requirements for specific training in use;

b) inspecting equipment prior to use on each work shift and as necessary during its use to ensure that it is safe;

c) removing defective or suspect equipment from service;

d) never loading equipment in excess of recommended safe working loads;

e) removing rigging equipment when not in use from the immediate work area;

f) maintaining equipment records on the job site as required.

4.2.3 Manual handling

*COMMENTARY ON **4.2.3***

Attention is drawn to The Manual Handling Operations Regulations 1992 (as amended) [2].

An assessment based on a range of relevant factors should be carried out to determine any risk of injury during manual handling, and should recommend appropriate action (for example, training).

NOTE The Manual Handling Operations Regulations 1992 (as amended) [2] establish the following clear hierarchy of control measures:

a) Avoid hazardous manual handling operations so far as is reasonably practicable, for example by redesigning the task to avoid moving the load or by automating or mechanizing the process.

b) Make a suitable and sufficient assessment of any hazardous manual handling operations that cannot be avoided.

c) Reduce the risk of injury from those operations so far as is reasonably practicable. Where possible, provide mechanical assistance, for example a sack trolley or hoist. Where this is not reasonably practicable, look at ways of changing the task, the load and/or working environment.

4.3 Storage

*COMMENTARY ON **4.3***

The individual parts of BS 8000 deal with particular requirements as some of the work sections will have different or particular methods/requirements for materials storage prior to installation particularly in respect to such issues as supporting structural components so as not to induce stress, protection of non-durable items from the elements or for those of high value from theft. These will need to be considered in addition to the general safe storage principles below.

Materials and components in storage, waiting or pre-assembly should be kept dry, where required, safe from damage or pilfering and should not be a danger to others. The following measures should be taken, where appropriate.

a) All materials stored in tiers should be stacked, racked, blocked, interlocked, or otherwise secured to prevent sliding, falling, or collapse.

b) The maximum safe load limits (e.g. kg/m^2) of floors should be posted conspicuously within buildings and structures and should not be exceeded.

c) Aisles and passageways should be kept clear to provide for the free and safe movement for manual or mechanical material handling.

d) Materials should not be stored on scaffolds or in passageways in excess of supplies needed for immediate operations.

e) Non-compatible materials should be segregated in storage.

f) Storage of materials should not create a hazard.

g) Bagged materials should be stacked by stepping back the layers and cross-keying the bags at appropriate layers to ensure stability.

h) Materials should not be stacked to excessive height, particularly if subsequently handling manually.

i) Materials should only be stacked on level ground or on solid supports to achieve level storage.

j) Stabilizing cross battens should be placed in stacks when appropriate.

k) If not racked, structural sections, poles, pipe, bar stock, and other cylindrical materials should be stacked and blocked.

l) Sheet materials should be stacked in flat piles, or vertical racks as appropriate and as recommended for the particular material.

m) Stock piles of sand, gravel, and crushed stone should be frequently inspected to prevent their becoming unsafe by continued adding to or withdrawing from the stock.

n) Compressed gas cylinders should be stored in an upright position, protected against heat and overturning and, when not in use, control valves should be covered with protective caps.

o) Suitable gloves, footwear, eye protection and other protective clothing should be worn as appropriate.

p) Materials should be stored with an awareness of storage lives and arranged to encourage the oldest stores to be used first.

Care should be taken in terms of layout and sequencing, so that materials stacked for particular operations or trades do not obstruct the working space or access of other trades.

4.4 Disposal of waste materials

*COMMENTARY ON **4.4***

BS 8895-1 provides principles and an implementation framework for waste prevention and minimization. It standardizes the relevant definitions, principles, framework and processes to provide for consistency throughout all life cycle stages of building projects.

Attention is drawn to The Site Waste Management Plans Regulations 2008 [3] and the requirements for a site waste management plan (SWMP) to be prepared at the outset of a project and maintained and updated for its duration. The duty to prepare a SWMP rests with the client but it is normal for this duty to be passed to the "principal contractor" (usually the "main" or "managing" construction contractor). Organizations undertaking work covered by one or more of the parts of BS 8000 will provide information to the principal contractor in order to assist in the preparation of a SWMP and comply with the provisions (usually as written within the terms of any sub contract).

The following safety recommendations relating to disposal of waste might or might not be a part of the SWMP but should be given particular attention.

a) Full use should be made of manufacturer/supplier recovery schemes.

b) All waste material and rubbish should be removed from the immediate storage, waiting, pre-assembly and work area as preparation for work and the work itself progresses.

c) Local fire and other waste disposal regulations should be complied with.

d) All solvent waste, oily rags and flammable liquids should be kept in fire-resistant covered containers until removed from the work site.

e) Hazardous or potentially hazardous waste materials (including used batteries, empty chemical containers, empty oil drums, etc.) should be stored in a designated specific area dedicated for hazardous waste storage. This area should, where appropriate:

   - be identified with signs;
   - be secured to prevent unauthorized access;
   - isolate ignitable (flammable) wastes;
   - provide rainfall and run-off controls;
   - provide secondary containment;
   - provide spill response equipment.

f) Vessels, containers, and tanks used to store hazardous wastes should be clearly labelled to ensure the waste is easily distinguished from other materials.

4.5 Sorting and sequencing

*COMMENTARY ON **4.5***

The individual parts of BS 8000 deal with particular requirements as some of the work sections will have different and particular methods of dealing with the need to sort and/or mix materials prior to installation.

Where operations involve a particularly large number of components and materials, particular checks should be made to ensure that they are all available at the workplace in good time and in the correct sequence.

4.6 Preparation for work

*COMMENTARY ON **4.6***

The individual parts of BS 8000 deal with particular requirements as some of the work sections will have different and particular methods of dealing with preparation for work prior to installation.

For all operations, the working space, conditions, substrate and appropriate continuity of work should be formally accepted prior to commencement.

5 Installation and execution

5.1 General

*COMMENTARY ON **5.1***

The individual parts of BS 8000 deal in detail with particular requirements as they will have different and particular methods related to that class/type of work.

Once the workplace, work continuity and work flow have been assessed, checked against any overall method statement and accepted (see **4.6**), work may commence. All operatives should have received appropriate training and should be properly skilled and, where required, certified for the tasks they are expected to undertake. Clear instructions should be provided regarding the methods to be used. All operatives should understand and respond to clear and formal reporting lines for authority and instruction.

5.2 Use of plant, equipment and power tools

5.2.1 General

*COMMENTARY ON **5.2.1***

The following applies to user operated plants and equipment.

The user should ensure that:

a) the plant and equipment are fit for purpose, safe to use and are maintained;

b) where specific training is required for particular operations, that the appropriate people receive that training and that untrained people do not operate the plant or equipment;

c) where necessary, risk assessments are prepared and complied with.

5.2.2 Working practices

Work areas should be clean, well lit, free from clutter and, where possible and if appropriate, the working zone should be physically demarcated.

Power tools should not be operated in explosive atmospheres, near flammable liquids, gases, or dust as they create sparks, which might ignite the dust or fumes. Those not directly involved in the process should be kept away when power tools are being used and the operative should stay alert and observant of both their work and surroundings.

Tools should only be used when the operative is familiar with the operating instructions. They should be kept clean to ensure a safe grip when in use.

Operatives should only work from a firm footing. Eye protection and other items such as a dust mask, non-skid safety shoes, hard hat, or hearing protection or other similar personal protective equipment (PPE) should be used when prescribed or needed. Long, loose hair and/or baggy clothes or similar hazards should be avoided or restrained.

5.2.3 Electrical power

Site voltage restrictions should be complied with. Battery packs should be stored away from other metal objects such as nails or screws to avoid sparks causing fire or injury.

Touching grounded (earthed) surfaces such as pipes, radiators, etc. should be avoided when using a power tool, as there is a higher risk of electric shock if a body is grounded. Special care, such as wearing rubber gloves and footwear, should be taken in damp locations and power tools should not be left in the rain or wet conditions. Only appropriate and undamaged extension cords should be used.

5.2.4 Condition/maintenance

Tools should be visually inspected prior to use to check that moving parts are not misaligned or binding or broken, paying particular attention to guards, shields and safety devices.

Damaged tools should only be repaired and recommissioned by qualified persons. All tools should be routinely maintained and tested as required to a schedule, e.g. Portable Appliance Testing (PAT).

To avoid accidental starting, cables to the appliance should be unplugged and batteries or lock off switches removed when tools are not being used, when accessories are being changed, and when adjusting or cleaning.

5.3 Discrepancies

Any discrepancies such as out of tolerance substrates, edges, surfaces or openings should be reported immediately before undertaking subsequent operations.

5.4 Coordination with other operations

*COMMENTARY ON **5.4***

Construction programmes are tightly controlled and performance to agreed programmes is generally built into construction contracts and subcontracts. The programmes will normally include references to dependencies and method statements and these will be especially critical where "LEAN" [1] processes such as "just in time" materials delivery are incorporated.

Everyone concerned should understand the importance of starting, completing and handing over stages/sections of work on time and without need for reworking. Management, supervisory and operative levels should be aware of and comply with relevant programmes and method statements.

One authority (typically a principle construction contractor) will generally be in control of the overall programme and should be kept informed and consulted when necessary. Each specialist should make themselves aware of dependencies with other operations and where possible should make direct contact in order to coordinate effectively.

5.5 Conditioning/curing/drying

*COMMENTARY ON **5.5***

The individual parts of BS 8000 deal with particular requirements as some of the work sections will have different and particular methods of dealing with conditioning, curing and drying issues.

---

[1] LEAN or LEAN processes methodically address anything wasteful or non-productive and seek to eliminate them. Subjects typically addressed are: transport, inventory, motion, waiting, overproduction, over processing, defects.

The particular methods prescribed or recommended by individual parts of BS 8000 should be adopted.

NOTE For some operations, so as to avoid damage or failure causing rework, it is advisable to be aware of the conditions affecting adjoining work sections/packages. This might apply particularly in respect of periods where access is not permitted.

5.6 Protection

*COMMENTARY ON **5.6***

The individual parts of BS 8000 deal with particular requirements as some of the work sections will have different and particular methods of dealing with protection.

Adequate protection measures should be applied to completed work and work in progress. A main or managing contractor will normally have a protection strategy to which specialist/works contractors should both contribute and adhere.

Floor finishes should be covered in a manner appropriate to the nature of subsequent traffic loads and as required by the contract, and areas should be cordoned off to indicate preferred (or required) routes. Wall finishes are generally most vulnerable at external corners and so should be protected from any following construction activities where necessary (coordinated with floor routes).

5.7 Safety issues

*COMMENTARY ON **5.7***

The individual parts of BS 8000 deal with particular requirements as some of the work sections will have different and particular methods of dealing with safety issues.

All mandatory and site specific requirements should be complied with.

6 Checking

*COMMENTARY ON CLAUSE **6***

The individual parts of BS 8000 deal with particular requirements as some of the work sections will have different and particular methods of dealing with checking of work in progress and as completed.

6.1 Checking work in progress

*COMMENTARY ON **6.1***

Assuring that the deliverable results will be achieved might require in-process checking, for example where critical aspects might become permanently covered prior to completion of the whole operation.

Where appropriate, inspection and checking of work in progress should be undertaken and recorded.

6.2 Checking interfaces/relationships

Many operatives hand over their work to following trades for further operations; where possible and keeping site management appraised, adjoining trades should liaise directly on issues, such as accuracy and protection related to these interfaces. Special account should also be taken of any safety issues in this liaison.

6.3 Checking completed work

*COMMENTARY ON **6.3***

Construction work packages are usually specified and contracted in terms of deliverable results and it is therefore generally possible to check objectively if these parameters have been achieved. These parameters also provide a benchmark for self-checking prior to submission for client/third party acceptance.

Prior to offering for completion, all work should be checked by the operative and where appropriate checked by a supervisor for that work.

When work is checked on behalf of the client, and the work judged to be acceptable, such acceptance in appropriate circumstances should formally indicate completion or stage completion prior to handover.

7 Handover

7.1 General

Whether there is just one period of work and one handover or staged handovers relating to physical spaces or zones, the work and the space in which it has taken place should be left in an appropriate state.

7.2 Clearing and cleaning

The worksite should be cleared and the presented work should be left clean so that it can be inspected and judged for acceptance.

7.3 Acceptance and protection

Acceptance should be obtained and verified prior to protection of the finished work.

Contracts should be checked and guidance given to site operatives where there are contract terms requiring an on-going exposure of responsibility for work that is completed long before final handover of the whole project. Provision should be made and steps taken, for example in the rigour applied to protection, to minimize such risk.

7.4 Defects

*COMMENTARY ON **7.4***

Acceptance at the end of a project is often referred to as "practical completion" (other similar terms are sometimes used). Most contracts and sub contracts have a requirement, attached to the release of final payment, for the building/facility to be in use for a period of time at the end of which any agreed patent or emerged latent defects are put right. Sometimes the need to return to a facility to repeat work will not be because of deficiencies on one's own work but to reinstate consequential damage after a deficiency in the work of others has been rectified.

If a building/facility is kept in operation whilst defects are put right, there should be close liaison between the client and the general or managing construction contractor and any other trades or specialist that might be involved. With a facility in operation, appropriate areas should be cordoned off and possibly even fully screened for the work, including any materials storage or pre-assembly, to take place safely.

NOTE Repair work is expected to be carried out to the same standard as specified in the original work contract, so working processes will largely be the same. Refer to the appropriate part of BS 8000.

7.5 Safety issues

In making provisions for protection, safety issues related to completed work such as equipment that is powered-up or otherwise loaded prior to commissioning and client use should be taken into account. Appropriate safety signage should be displayed.

7.6 Feedback

Where required, information about performance should be collected and fed back into the appropriate parts of the project organization.

NOTE Issues for feedback might include:

a) the outcome of the completed work including any safety issues;

b) the process: design, general construction, specialist construction and own team;

c) performance to cost and programme.

7.7 Information/data

As built/as constructed information should be provided as required by the contract.

NOTE Provision of "as built" information is a requirement on most projects (and might be mandatory where the Construction (Design and Management) Regulations 2007 [1] apply) and provision of the information is usually a contractual matter.

Building Information Modelling or BIM (see Annex C) is rapidly increasing in use on projects and the most significant reason for this is the ability of BIM to provide a continuum of data from design through construction into the operations of buildings and other constructions. This requires structured transfer of specific data sets which will be assembled into packages, some of which might affect trades and specialisms covered by BS 8000. A part of the process is that the contracts need to be very specific about the data required and the task of the trade or specialist contractor/subcontractor will be to respond accurately and in a timely manner to such requests/requirements. This task is not particularly onerous and the data sets slowly build through the duration of contracts to handover (and beyond for some). A simple data format known as COBie [2] is used for this data collection and transfer.

[2] COBie (Construction Operations Building Information Exchange) is a formal scheme that helps organize information about new and existing facilities. It is general enough that it can be used to document both buildings and infrastructure assets. It is simple enough that it can be transmitted using a spreadsheet.

Annex A (informative)

Parts of BS 8000

Each part of BS 8000 was originally designated with an alpha-numeric code from the Common Arrangement of Work Sections (CAWS) which is itself a table within the Uniclass system (unified classification for the construction industry). The CAWS codes help in coordinating with other documentation such as construction drawings and specifications.

At the time of publication, two versions of the Uniclass system codes exist – the first version of Uniclass (Uniclass 1.0) and a new version, Uniclass 2.0, which is a response to updating the contents of the tables for use with Building Information Modelling systems. For a period of years from the date of this publication, each of the parts of BS 8000 will bear the Uniclass references in both Uniclass 1.0 "Common Arrangement of Work Sections" and Uniclass 2.0 formats. See Table A.1 for both codes.

NOTE For further information on Uniclass 2.0, see the CPI website <www.cpic.org.uk> [last viewed 3 January 2014].

Table A.1 **Parts of BS 8000**

BS 8000 part	Title of part	Uniclass 2.0 code	Uniclass 2.0 title	Uniclass 1.0 code
BS 8000-1:1989	Workmanship on building sites – Code of practice for excavation and filling	Ss_15_10_30	Excavating and filling systems	D20
BS 8000-2.1: 1990	Workmanship on building sites – Code of practice for concrete work – Mixing and transporting concrete			E10
BS 8000-2.2: 1990	Workmanship on building sites – Code of practice for concrete work – Sitework with in situ and precast concrete	Ss_20_05_15	Concrete foundation systems	E10
		Ss_20_05_50	Minor concrete substructure systems	
		Ss_25_11_16	Concrete wall systems	
		Ss_30_12_85	Structural deck systems	
		Ss_35_10_85	Stair and ramp structural systems	
BS 8000-3:2001	Workmanship on building sites – Code of practice for masonry	Ss_25_13_50	Masonry wall systems	F10
BS 8000-4:1989	Workmanship on building sites – Code of practice for waterproofing	Ss_25_45_95	Wall damp-proofing systems	
		Ss_30_05_30	Floor damp-proofing systems	

Table A.1 **Parts of BS 8000**

BS 8000 part	Title of part	Uniclass 2.0 code	Uniclass 2.0 title	Uniclass 1.0 code
BS 8000-5:1990	Workmanship on building sites – Code of practice for carpentry, joinery and general fixings	Ss_40_15_10	Custom-made joinery systems	G20, H21, K11, K20, L10, L20, L30
		Ss_40_15_50	Minor joinery systems	
		Ss_20_10_75_85	Timber framing systems	
		Ss_30_10_30_85	Timber roof framing systems	
		Ss_30_12_85_90	Timber floor, roof or balcony deck systems	
		Ss_30_20_10	Board floor systems	
		Ss_30_20_95	Wood strip and board fine flooring systems	
		Ss_35_10_85_90	Timber stair or ramp systems	
BS 8000-6:2013	Workmanship on building sites – Code of practice for slating and tiling of roofs and claddings	Ss_30_40_95	Unit roofing systems	H60, H61 and H62
BS 8000-7:1990	Workmanship on building sites – Code of practice for glazing	Ss_25_60_35	Glazing systems	L40
		Ss_30_40_80	Sloping patent glazing systems	
BS 8000-8:1994	Workmanship on building sites – Code of practice for plasterboard partitions and dry linings	Ss_25_12_65	Panel partition systems	K10
		Ss_25_25_45	Lining and casing systems	
BS 8000-9:2003	Workmanship on building sites – Cementitious levelling screeds and wearing screeds – Code of practice	Ss_30_42_10	Calcium sulfate-based screed systems	M10
		Ss_30_42_15	Cementitious screed systems	
BS 8000-10:1995	Workmanship on building sites – Code of practice for plastering and rendering	Ss_25_45_65	Plaster coating systems	M20
BS 8000-11:2011	Workmanship on building sites – Internal and external wall and floor tiling – Ceramic and agglomerated stone tiles, natural stone and terrazzo tiles and slabs, and mosaics – Code of practice	Ss_25_40_25	External wall tiling systems	M40 and M41
		Ss_25_45_45	Internal wall tiling systems	
		Ss_25_45_88	Terrazzo wall tiling systems	
		Ss_30_42_32	Floor tiling systems	
		Ss_30_42_90	Terrazzo floor tiling and screed systems	
BS 8000-12:1989	Workmanship on building sites - Code of practice for decorative	Ss_25_45_70	Rolled paper and fabric covering systems	M52 and M60
	wallcoverings and painting	Ss_40_90_60	Painting and clear finishing systems	
BS 8000-13:1989	Workmanship on building sites - Code of practice for above ground drainage and sanitary appliances	Ss_50_30_04	Above-ground waste water drainage systems	R11

Table A.1 **Parts of BS 8000**

BS 8000 part	Title of part	Uniclass 2.0 code	Uniclass 2.0 title	Uniclass 1.0 code
BS 8000-14:1989	Workmanship on building sites - Code of practice for below ground drainage	Ss_50_30_06	Below-ground drainage inspection systems	R12
		Ss_50_30_08	Below-ground gravity drainage systems	
BS 8000-15:1990	Workmanship on building sites - Code of practice for hot and cold water services (domestic scale)	Ss_55_70_38	Hot and cold water supply systems	S10 and S11
BS 8000-16:1997 +A1:2010	Workmanship on building sites - Code of practice for sealing joints in buildings using sealants	Pr_30_31_76	Sealants and glazing compounds	P22
		Pr_35_31_65_26	Edge sealants	

Annex B (informative) Health and safety issues

B.1 Health issues

Personnel will need to be aware of the following health issues:

a) Asbestos – identifying asbestos risk, applying for a licence to work with asbestos, disposing of waste safely and legally, and training workers in safe handling of asbestos.

b) Carbon monoxide – construction work encounters CO gas issues in three ways: site worker and security staff facilities, refurbishment work on existing buildings, and the Gas Safe Register for gas engineers.

c) Manual handling and musculoskeletal disorders – avoiding manual handling tasks where possible, assessing the risks carefully and obtaining information about the size and distribution of loads.

d) Dermatitis – finding out about the substances that can cause irritant and allergic skin conditions and how to protect workers from coming into contact with them.

e) Respiratory disease – reducing exposure to substances that cause respiratory disease or breathing difficulty.

f) Noise – avoiding, eliminating and reducing noise at work and providing hearing protection.

g) Work-related stress – using HSE's management standards for work-related stress to assess and eliminate stress from the workplace.

h) Hand-arm vibration – assessing the risk of injury from vibrating power tools and taking positive action to eliminate the risk or reduce it to a low level.

NOTE For further information, see the HSE website: <http://www.hse.gov.uk/construction/healthtopics/index.htm> [last viewed 3 January 2014].

B.2 Safety issues

Personnel will need to be aware of the following safety issues:

a) Site organization – organizing a safe and healthy construction site in terms of traffic management, protecting the public, materials storage and waste management, welfare and administration.

b) Slips, trips and falls – assessing, eliminating and controlling the risks of slips, trips and falls.

c) Work at height – understanding the hierarchy of controls for working at height, from working at ground level, using towers, scaffolds, platforms and ladders, and fall restraints and safety netting.

d) Structural stability – assessing the risks and preventing unintentional structural collapse during alterations, demolition and dismantling; and the measures needed to prevent accidents in excavations.

e) Cranes – using a competent person to plan all operations involving lifting equipment, employing and ensuring they are appropriately supervised and carried out in a safe manner.

f) Electricity – working safely with power supplies and electrical equipment; mapping overhead power lines and underground cables to prevent accidental contact with machinery.

g) Fire – identifying the risks of fire, controlling combustible materials and ignition sources, and making it clear exactly what to do if fire does break out.

h) Mobile plant and vehicles – assessing the risks, establishing competence to operate and controlling access to telehandlers, excavators, mobile work platforms, dumpers and road vehicles.

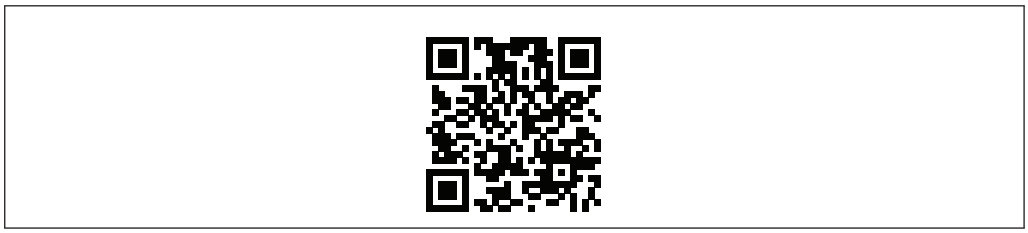
i) Demolition – planning all demolition, dismantling and structural alteration and undertaking them using competent practitioners.

NOTE For further information, see the HSE website: <http://www.hse.gov.uk/construction/safetytopics/index.htm> [last viewed 3 January 2014].

Annex C (informative) Building Information Modelling (BIM) and digital data

A large majority of data is now readily available on handheld devices, such as personal and tablet computers and smartphones. Business transactions of all kinds are going electronic and it is reasonable to expect that this will have a significant effect on operations in the workplace on construction sites. For example, systems for documenting data about a fire door could be referenced from a "QR" code which would be fixed to that door and instantly readable by any smartphone (see Figure C.1).

Figure C.1 **Example of a QR code readable by a smartphone**



The UK government made the commitment in September 2010 that all construction procurement involving government funding (i.e. with the government as the client) would be required to use Building Information Modelling (BIM) at what is referred to as "Level 2" by 2016.

"Level 2 BIM" has particular requirements regarding the formats for the transfer data/information but is designed to make best use of the data technology within existing and familiar legal and contractual arrangements. As Level 3 approaches, new contracts and other arrangements will be necessary to handle the total integration of all information.

For the majority of the users of BS 8000 the results of the advance of digital data will not involve additional work as they are, by and large, significant users but not particularly significant creators of data/information. The data/information they need will be more easily available, complete and reliable at the point of use. In the simple example above, a QR code readable by any smartphone could link a carpenter to everything they need to know about the door and its fixing – including the extent of their own operations, how to leave it for following trades/operations and interactively signing off that they have completed their work, possibly even backed up by photographic evidence to be logged in an archive for handover documentation. It is advantages of this kind that have convinced government that requiring the use of digital systems from design through construction to occupation is hugely beneficial.

Bibliography

Standards publications

For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

BS 5606:1990, *Guide to accuracy in buildings*

BS 8895-1, *Designing for material efficiency in building projects – Part 1: Code of practice for appraisal and strategic briefing*

Other publications

[1] GREAT BRITAIN. The Construction (Design and Management) Regulations 2007. London: The Stationery Office.

[2] GREAT BRITAIN. The Manual Handling Operations Regulations 1992 (as amended). London: The Stationery Office.

[3] GREAT BRITAIN. The Site Waste Management Plans Regulations 2008. London: The Stationery Office.

This page deliberately left blank

This page deliberately left blank

British Standards Institution (BSI)

BSI is the national body responsible for preparing British Standards and other standards-related publications, information and services.

BSI is incorporated by Royal Charter. British Standards and other standardization products are published by BSI Standards Limited.

About us

We bring together business, industry, government, consumers, innovators and others to shape their combined experience and expertise into standards -based solutions.

The knowledge embodied in our standards has been carefully assembled in a dependable format and refined through our open consultation process. Organizations of all sizes and across all sectors choose standards to help them achieve their goals.

Information on standards

We can provide you with the knowledge that your organization needs to succeed. Find out more about British Standards by visiting our website at bsigroup.com/standards or contacting our Customer Services team or Knowledge Centre.

Buying standards

You can buy and download PDF versions of BSI publications, including British and adopted European and international standards, through our website at bsigroup.com/shop, where hard copies can also be purchased.

If you need international and foreign standards from other Standards Development Organizations, hard copies can be ordered from our Customer Services team.

Subscriptions

Our range of subscription services are designed to make using standards easier for you. For further information on our subscription products go to bsigroup.com/subscriptions.

With **British Standards Online (BSOL)** you'll have instant access to over 55,000 British and adopted European and international standards from your desktop. It's available 24/7 and is refreshed daily so you'll always be up to date.

You can keep in touch with standards developments and receive substantial discounts on the purchase price of standards, both in single copy and subscription format, by becoming a **BSI Subscribing Member**.

PLUS is an updating service exclusive to BSI Subscribing Members. You will automatically receive the latest hard copy of your standards when they're revised or replaced.

To find out more about becoming a BSI Subscribing Member and the benefits of membership, please visit bsigroup.com/shop.

With a **Multi-User Network Licence (MUNL)** you are able to host standards publications on your intranet. Licences can cover as few or as many users as you wish. With updates supplied as soon as they're available, you can be sure your documentation is current. For further information, email bsmusales@bsigroup.com.

BSI Group Headquarters

389 Chiswick High Road London W4 4AL UK

Revisions

Our British Standards and other publications are updated by amendment or revision.

We continually improve the quality of our products and services to benefit your business. If you find an inaccuracy or ambiguity within a British Standard or other BSI publication please inform the Knowledge Centre.

Copyright

Useful Contacts:

Customer Services
Tel: +44 845 086 9001
Email (orders): orders@bsigroup.com
Email (enquiries): cservices@bsigroup.com

Subscriptions
Tel: +44 845 086 9001
Email: subscriptions@bsigroup.com

Knowledge Centre
Tel: +44 20 8996 7004
Email: knowledgecentre@bsigroup.com

Copyright & Licensing
Tel: +44 20 8996 7070
Email: copyright@bsigroup.com

bsi.

...making excellence a habit.™