

This Standard is confirmed.
See the BSI Catalogue for details.
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British Standard Specification for Modular coordination in building

Coordination modulaire dans le bâtiment — Spécifications

Modulordnung im Bauwesen

Confirmed
January 2011

Foreword

BS 6750 was prepared under the direction of the Basic Data and Performance Criteria for Civil Engineering and Building Structures Standards Committee.

International and British Standards have been published to cover the specification of sizes for buildings, their components and materials, the system of tolerances for building and the requirements for joints and jointing in the design, manufacture and assembly of buildings.

This British Standard is a combination of, and is technically equivalent to, ISO 1006, ISO 1040, ISO 2848, ISO 6511, ISO 6512, ISO 6513, and ISO 6514, but incorporates minor differences in presentation. The 'Specification' clauses of these ISO standards have been incorporated into the clauses of this standard. The 'Application' clauses of these ISO standards have been incorporated into the appendix.

BS 6750 also takes into account ISO 1790, ISO 1791, ISO 1803, ISO 2444, ISO 2445, ISO 2776, ISO 2777, ISO 3443/1 and ISO 3443/2.

BS 4011, BS 4330, DD 51, PD 6432 and PD 6444 are withdrawn.

Further information on the subject can be found in CIB Report No. 68 — 1984, The Principles of Modular Coordination in Building, and CIB Report No. 36 — 1980, Some Notes on Geometry of Joints for Catalogue Building*.

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

* Obtainable from the International Council for Building Research Studies and Documentation, PO Box 2774, 33001 JA, Rotterdam, Netherlands.

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Specification

0 Introduction

0.1 The principle of modular coordination

The principal purpose of modular coordination is to simplify and make more economical the design and construction of buildings, by standardization of sizes, in such a way that components fit with each other when assembled on site as parts of a building.

Modular coordination is based on a standard reference system which uses the international basic module of 100 mm for the coordinated control of spaces in buildings, as well as for the sizing and locating of building components and elements.

Modular coordination is a well established practical discipline which has been thoroughly proven over many years in many different constructions and circumstances, in most countries.

0.2 The need for modular coordination

0.2.1 General benefits. The principal effect of modular coordination is to facilitate cooperation between building designers, manufacturers, distributors and authorities; it provides a flexible type of standardization which encourages the use of building components having a restricted number of standard sizes for the construction of different types of buildings.

Building components produced in standard ranges of sizes can be interchanged, whatever their form, material or method of manufacture.

Site operations are simplified due to the rationalized sizing, setting out, positioning and assembly of building components.

0.2.2 Practical benefits in the design office. BS 6750 specifies a framework that permits diversity of design through the use of components having standardized modular sizes.

The standard provides for interchangeability of components, which allows a flexible response to user requirements and individual needs.

The standard also provides a basis for the systematic consideration of joint design to improve fit and performance.

Modular coordination is of particular significance in the light of the increased use of computers in design, costing and construction, where three dimensional coordinates are invariably needed in computer modelling to describe the location and size of spaces, elements and components and as a basis for the assessment, calculation and specification of their performance and costs.

0.2.3 Practical benefits in the manufacture of components.

This standard specifies a way of sizing components to fit standard spaces in any building, and gives guidance on the selection of ranges of sizes that will reduce variety yet increase potential applications by virtue of interchangeability.

Adoption of a reduced range of selected standard sizes simplifies ordering of material, manufacturing processes, stock holding, invoicing, distribution and packing.

0.2.4 Practical benefits on the building site. Adoption of the procedures specified in this standard will reduce waste on site arising from cutting to fit, accelerate the assembly process by ease of fit, and facilitate the coordination of the different trades and suppliers. Adoption will also ensure that equipment, services, storage units and fitted furniture can be incorporated in the building in a coordinated manner.

0.2.5 Summary. Modular coordination makes use of:

- (a) the basic module (i.e. 100 mm);
- (b) multimodules (see clauses 2 and 3);
- (c) submodular increments (see clauses 2 and 5);
- (d) a modular grid reference system to define zones and coordinating spaces for building elements and for the components which form them;
- (e) rules for locating building elements;
- (f) rules for selecting preferred sizes for building components and coordinating sizes for buildings;
- (g) rules for sizing building components; including their work sizes.

1 Scope

This British Standard specifies requirements for:

- (a) modular reference systems to be used in the design of buildings;
- (b) the position of key reference planes;
- (c) the sizing of buildings and their components and materials which are designed in compliance with the principles of modular coordination.

NOTE 1. The standard's application to the sizes of buildings and to their components and materials in design, manufacture and construction and drawing conventions relating to modular coordination are described in appendix A.

NOTE 2. The titles of the publications referred to in this standard are listed on the inside back cover.

2 Definitions

For the purposes of this standard the definitions given in BS 6100 apply, with particular reference to Subsection 1.5.1.

NOTE. Modular coordination terms occurring in the text may be found in the index.

3 Basic module

The basic module shall be the fundamental unit of size for the horizontal and vertical coordinating dimensions of buildings, their spaces, components and materials.

The size of the basic module shall be 100 mm.

The basic module shall be represented by the letter M.

4 Multimodules

A multimodule shall be a selected whole multiple of the basic module.

The sizes for multimodules shall be 3 M, 6 M, 12 M, 15 M, 30 M and 60 M.

NOTE. Multimodules are used as increments both for the horizontal and vertical coordinating dimensions of buildings, their spaces, components and materials (see table 1).

5 Submodular increments

Submodular increments shall be selected fractions of the basic module. The submodular increment shall be either 50 mm or 25 mm.

NOTE. The first preference for submodular increments is 50 mm and the second preference 25 mm.

6 Modular sizes for coordinating dimensions of spaces

Sizes for horizontal coordinating dimensions of spaces shall be selected from table 2, and for vertical coordinating dimensions shall be selected from table 3.

7 Modular reference system

The reference system for the design of buildings, the coordinated control of spaces in buildings, and the basis for sizing and location of components, shall be based on a three dimensional modular space grid of 100 mm (see figure 1).

NOTE. The principles of the reference system may also be applied to curvilinear and triangular structures.

Table 2. Modular sizes for horizontal coordinating dimensions of spaces

Dimension/space	Range of space	Multiples of size
Zones for columns and loadbearing walls	mm 100 to 600	3 M or 1 M
Centres of columns and wall zones	From 900	3 M or 1 M
Spaces between column and wall zones	From 600	3 M or 1 M
Openings in walls (e.g. for windows and doorsets)	From 600	3 M or 1 M
NOTE. The first preference for the multiple of size in each case is 3 M.		

8 Modular grids

Selections from the basic module spacegrid for specific purposes shall coincide with the basic module spacegrid or shall have a precise relationship to it and with each other.

NOTE. Selections from the basic module spacegrid may be made for convenience of design and setting out. Examples are given in figure 2.

Table 1. Preferred modular sizes based upon the multimodules for horizontal and vertical dimensions

Multi-modules	Preferred modular sizes in multiples of M																			
3 M	3	6	9	12	15	18	21	24	27	30	33	36	39	42	45	48				
6 M		6		12		18		24		30		36		42		48	54	60	66	72
12 M				12				24				36				48	60	72	84	96
15 M					15					30				45			60	75	90	105
30 M										30							60		90	
60 M																	60			

* See note 3.

NOTE 1. The preferred modular sizes that are selected in preference to other sizes for horizontal and vertical coordinating dimensions are primarily intended for the sizing of components, groups of components and spaces.

NOTE 2. The sizes derived from 3 M and 6 M have been restricted in the table to the limits shown.

NOTE 3. The 15 M, 30 M and 60 M series correspond to the series in a system of preferred numbers which contain the factor five. These series can also be extended to use larger increments in the series such as 120 M or larger.

NOTE 4. In the selection of sizes from the table, preference should be given to the series of the largest multimodule compatible with functional requirements and economic design.

Table 3. Modular sizes for vertical coordinating dimensions of spaces

Dimension/space	Range of space	Multiples of size
Floor to ceiling and floor to floor (and roof)	mm up to 3600	1 M
	from 3600 to 4800	3 M
	above 4800	6 M
Zones for floors and roofs	100 to 600	1 M
	above 600	3 M
Changes of floor and roof levels	300 to 2400	3 M
	above 2400	6 M
Openings in walls (e.g. for windows, including sills and/or sub-sills, and for doorsets)	300 to 3000	3 M or 1 M
NOTE 1. For application of 75 mm sizes for bricks and 200 mm sizes for blocks, see A.2.3.3.		
NOTE 2. Where the option of 3 M or 1 M is given, the first preference for the multiple of size is 3 M.		

9 Key reference planes

Planes shall be established as key reference planes for use horizontally and vertically and shall be spaced at multimodular intervals or at modular intervals.

NOTE. Planes should preferably be spaced at multimodular intervals.

A key reference plane shall coincide with a plane of the basic module grid.

A key reference plane shall be identified on drawings by a small circle at the end of its reference line (see A.5).

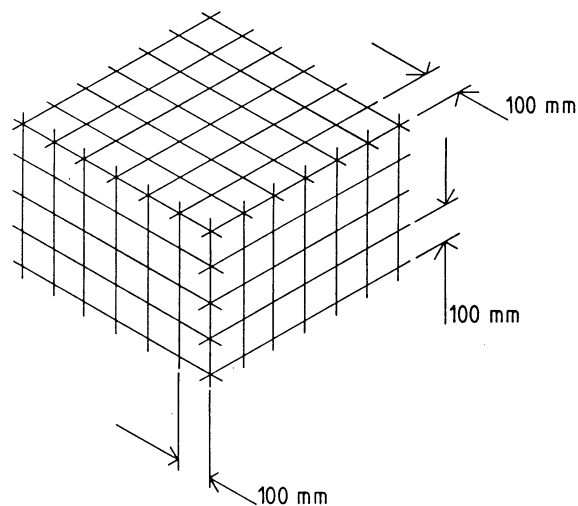
Key reference planes shall be selected as datums for the location of components, and for practical setting out on site.

A key reference plane used as a datum for setting out components shall be represented by a square set diagonally at the extremity of its line (see A.5.4).

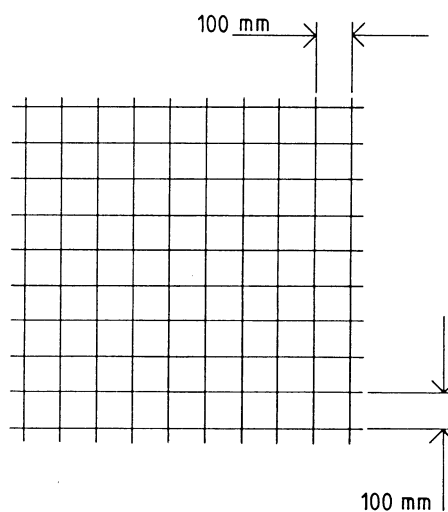
10 Modular floor plane

Vertical dimensions shall be taken from the key reference plane.

NOTE. The modular floor plane is the key reference plane.



(a) Three dimensional basic module grid

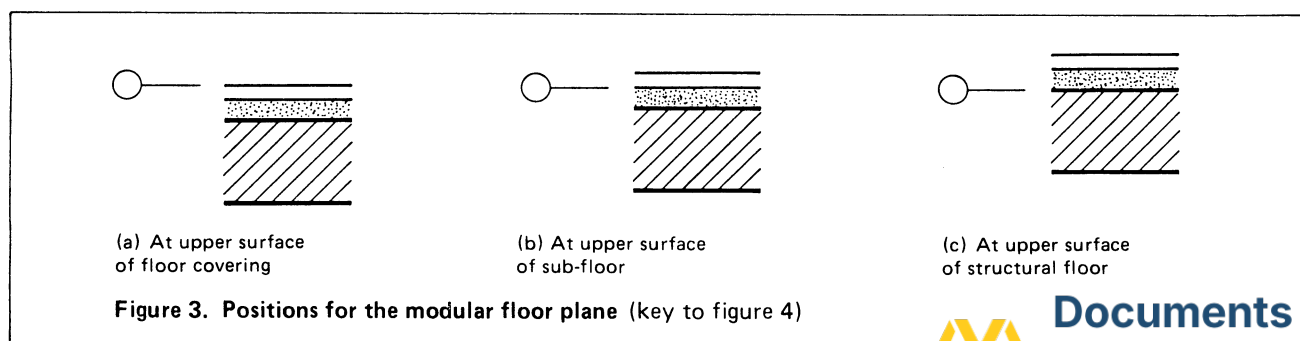
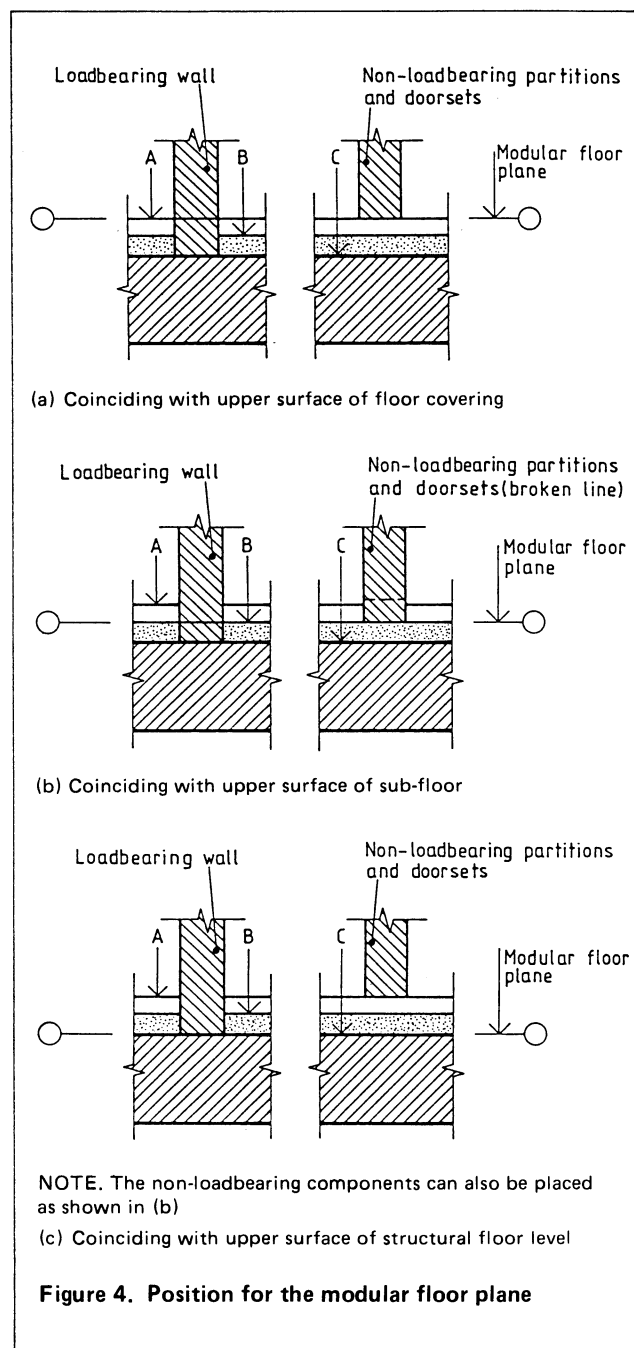
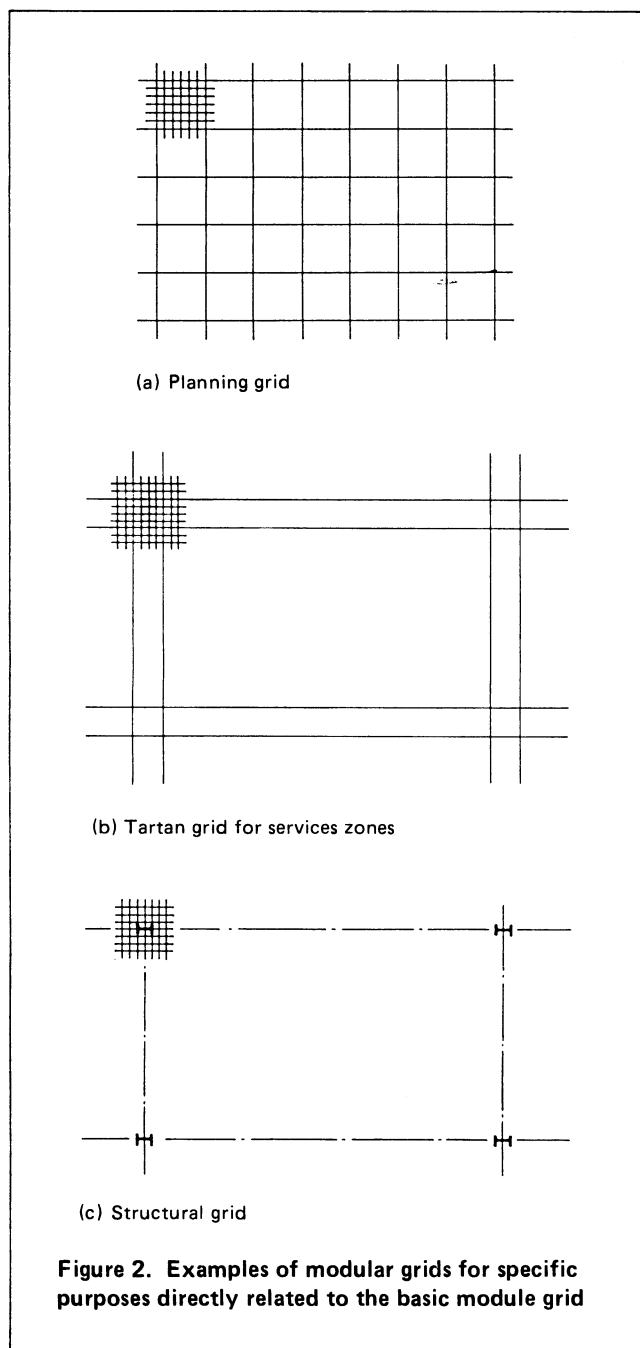


(b) The basic module grid, as represented on drawings as a two dimensional projection

Figure 1. Basic module spacegrid

The modular floor plane shall be chosen from one of the following three positions.

- (a) the upper surface of the floor covering (see figures 3 and 4(a)); or
- (b) the upper surface of the sub-floor (see figures 3 and 4(b)); or
- (c) the upper surface of the structural floor (see figures 3 and 4(c)).



11 Storey heights and room heights

The vertical modular dimension shall be either the storey height or the room height.

NOTE. The storey height is preferred.

The floor zone height, storey height and room height shall be modular (see figure 5).

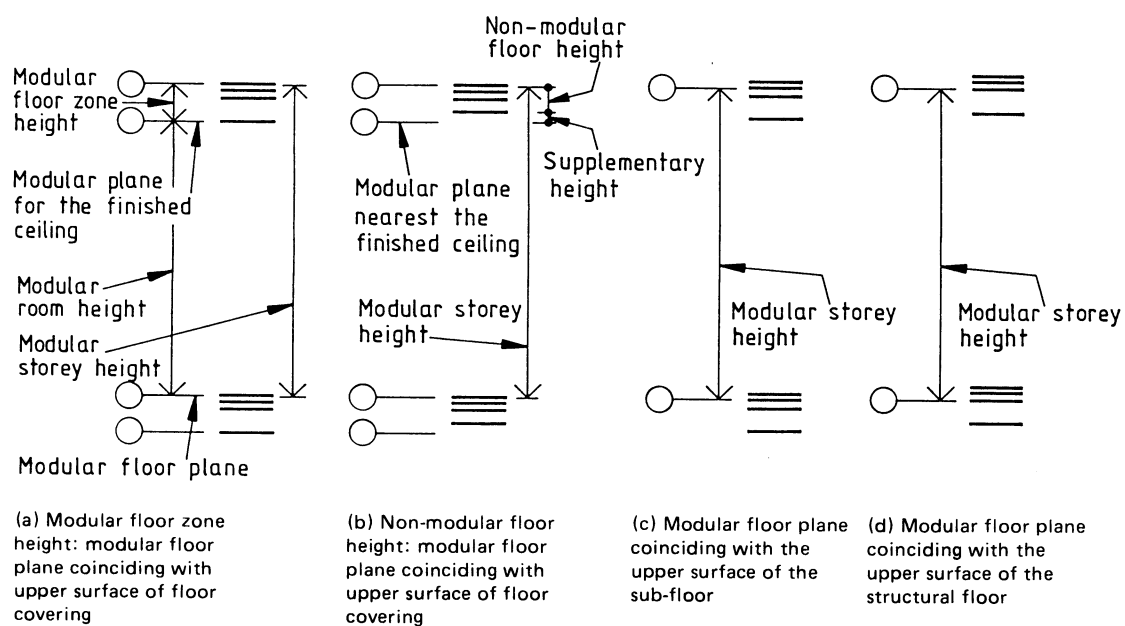


Figure 5. Positions of the structure in relation to the modular storey height and floor plane