भारतीय मानक ब्यूरो
(उपभोक्ता मामले,खाद्य एंव सार्वजनिक वितरण मंत्रालय,भारत सरकार)
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व्यापक परिचालन मसौदा

हमारा संदर्भ: सीईडी 51/टी-9 **19 जून 2024**

तकनीकी समिति: योजना एवं हाउसिंग विषय समिति, सीईडी 51

प्राप्तकर्ता :

1. **सिविल अभियांत्रिकी विभाग परिषद, सीईडीसी के सभी सदस्य**
2. **योजना एवं हाउसिंग विषय समिति, सीईडी 51 के सभी सदस्य**
3. **रुचि रखने वाले अन्य निकाय।**

महोदय/महोदया,

निम्नलिखित मानक का मसौदा संलग्न हैं:

प्रलेख संख्या	शीर्षक
सीईडी 51(25908)WC	**मॉड्यूलर कोआर्डिनेशन — शब्दावली** (आई एस 4993 का तीसरा पुनरीक्षण) (आई सी एस नंबर: 91.010.30)

कृपया इस मसौदे का अवलोकन करें और अपनी सम्मतियाँ यह बताते हुए भेजे कि यह मसौदा प्रकाशित हो तो इस पर अमल करने में आपको व्यवसाय अथवा कारोबार में क्या कठिनाइयां आ सकती हैं।

सम्मतियाँ भेजने की अंतिम तिथि: 20 जुलाई 2024

सम्मति यदि कोई हो तो कृपया अधोहस्ताक्षरी को ई-मेल द्वारा ced51@bis.gov.in पर या उपरलिखित पते पर, संलग्न फोर्मेट में भेजें। सम्मतियाँ बीआईएस ई-गवर्नेंस पोर्टल, www.manakonline.in के माध्यम से ऑनलाइन भी भेजी जा सकती हैं।

यदि कोई सम्मति प्राप्त नहीं होती है अथवा सम्मति में केवल भाषा संबंधी त्रुटि हुई तो उपरोक्त प्रलेख को यथावत अंतिम रूप दे दिया जाएगा। यदि सम्मति तकनीकी प्रकृति की हुई तो विषय समिति के अध्यक्ष के परामर्श से अथवा उनकी इच्छा पर आगे की कार्यवाही के लिए विषय समिति को भेजे जाने के बाद प्रलेख को अंतिम रूप दे दिया जाएगा।

यह प्रलेख भारतीय मानक ब्यूरो की वैबसाइट www.bis.gov.in पर भी उपलब्ध हैं।

धन्यवाद!

भवदीय
ह/-

द्वैपायन भद्र
वैज्ञानिक 'ई' एवं प्रमुख
सिविल अभियांत्रिकी विभाग

सलंग्न: ऊपरलिखित

भारतीय मानक ब्यूरो
(उपभोक्ता मामले, खाद्य एवं सार्वजनिक वितरण मंत्रालय, भारत सरकार)
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WIDE CIRCULATION DRAFT

Our Reference: CED 51/T-9 **19 June 2024**

Planning and Housing Sectional Committee, CED 51

ADDRESSED TO:

1. All Members of Civil Engineering Division Council, CEDC
2. All Members of the Planning and Housing Sectional Committee, CED 51
3. All others interested

Dear Sir/Madam,

Please find enclosed the following draft:

Doc No.	Title
CED 51(25908)WC	**Modular co-ordination — Terminology** (*Third Revision of* IS 4993) (ICS No. 91.010.30)

Kindly examine the attached draft and forward your views stating any difficulties which you are likely to experience in your business or profession, if this is finally adopted as National Standard.

Last Date for comments: 20 July 2024

Comments if any, may please be made in the enclosed format and emailed at ced51@bis.gov.in or sent at the above address. Additionally, comments may be sent online through the BIS e-governance portal, www.manakonline.in.

In case no comments are received or comments received are of editorial nature, kindly permit us to presume your approval for the above document as finalized. However, in case comments, technical in nature are received, then it may be finalized either in consultation with the Chairman, Sectional Committee or referred to the Sectional Committee for further necessary action if so desired by the Chairman, Sectional Committee.

The document is also hosted on BIS website www.bis.gov.in.

Thanking you,

Yours faithfully,
Sd/-

(Dwaipayan Bhadra)
Scientist 'E' / Director & Head
(Civil Engineering Department)

Encl: As above

FORMAT FOR SENDING COMMENTS ON THE DOCUMENT

[Please use A4 size sheet of paper only and type within fields indicated. Comments on each clause/sub-clause/ table/figure, etc, be stated on a fresh row. Information/comments should include reasons for comments, technical references and suggestions for modified wordings of the clause. **Comments through e-mail to ced51@bis.gov.in shall be appreciated**.

Doc. No.: CED 51(25908)WC **BIS Letter Ref**: CED 51/T-9

Title: Modular co-ordination — Terminology (*Third Revision of* IS 4993) (ICS No. 91.010.30)

Last date of comments: **20 July 2024**

Name of the Commentator/ Organization: _____

Clause/ Para/ Table/ Figure No. commented	Comments/Modified Wordings	Justification of Proposed Change

NOTE- Kindly insert more rows as necessary for each clause/table, etc

BUREAU OF INDIAN STANDARDS

DRAFT FOR COMMENTS ONLY

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Draft Indian Standard

MODULAR CO-ORDINATION — TERMINOLOGY

(*Third Revision of IS 4993*)

ICS No. 91.010.30

Planning and Housing Sectional Committee, CED 51	**Last Date for Comments: 20 July 2024**

FOREWORD

(Formal Clauses to be added later)

Modular coordination in construction aims to standardize building components so that they fit together seamlessly and ensures harmonious design and assembly of building components. Modular coordination involves dimensioning and positioning buildings and components based on a fundamental unit or module which serves as a common reference for coordinating sizes. Modular coordination facilitates sustainable benefits towards waste minimization and increases efficiency of construction and reduces overall time of construction.

A series of National Standards have already been published to cover important aspects pertaining to modular coordination. This standard was first published in 1969 and revised in 1973 and then in 1983. In the last revision of the standard, the standard aligned with the following standards issued by the International Organization for Standardization:

IS0 1791-1973 Modular co-ordination — Vocabulary
IS0 1803-1973 Tolerances for buildings — Vocabulary

This revision is brought out as the Committee responsible for this standard felt the need to cover the terminology in a comprehensive manner and add further definitions on the basis of experience gained over the years and also to bring it in line with the National Building Code of India 2016 (SP 7 : 2016). In this revision, besides the modification of the existing definitions, a number of new terms have also been included with a view to bringing about uniformity in the expression of various terms applicable to modular coordination. In the formulation of this standard due weightage has been given to international co-ordination among standards and practices prevailing in different countries in addition to relating it to the practices in the field in this country.

The composition of the Committee responsible for formulation of this standard is given at Annex A.

This standard contributes to the following United Nations Sustainable Development Goal: Goal 9 ‘Industry, Innovation and Infrastructure’ towards building resilient infrastructure; promote inclusive and sustainable industrialization and faster innovation; and Goal 11 ‘Sustainable Cities and Communities’ towards making cities and human settlements inclusive, safe, resilient and sustainable.

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Draft Indian Standard

MODULAR CO-ORDINATION — TERMINOLOGY

(*Third Revision of IS 4993*)

(ICS No. 91.010.30)

1 SCOPE

1.1 This standard gives definitions of terms used in modular co-ordination for study, planning and construction of buildings designed in accordance with the principles of modular co-ordination and for the study and manufacture of the components used in such buildings.

1.2 The definitions of terms related to tolerances in modular coordination are excluded from this standard and are covered in IS 6408 (Part 1).

2 TERMINOLOGY

2.1 Actual Deviation — The algebraic difference between the actual size and the corresponding basic size.

2.2 Actual Dimensions — The measured dimensions of the elements or components after casting or fabrication. This dimension may differ from the working dimensions due to construction and material induced variation. This is also known as actual measurement.

2.3 Actual Size — The size obtained by measuring a component.

2.4 Basic Size — The size by reference to which the limits of size are fixed.

2.5 Basic Module — The fundamental module used in modular coordination, the size of which is selected for general application to building and components.

NOTE — The value of the basic module has been chosen as 100 mm for the maximum flexibility and convenience. The symbol for the basic module is M.

2.6 Basic Modular Grid — Modular grid with lines spaced apart at the basic module.

2.7 Basic Modular Space Grid — Modular space grid with lines spaced apart at the basic module.

2.8 Building Framework — Part of building manufactured on site with building materials or one or more components or with a combination of these.

2.9 Building Material — Material for construction work as delivered from quarry or factory.

2.10 Building Products — All things produced by man for use in building. Building products consist of building materials and components.

2.11 Clearance — The empty space persisting after installation between two components of which one at least is movable.

2.12 Component — A building product formed as a distinct unit having specified sizes in three dimensions.

2.13 Control (Partial) — Control in which only certain parts or units in a lot are examined in one or more aspects.

2.14 Controlling Lines — Modular grid lines which establish the need for delineating the datum/reference lines in respect to load bearing elements of structure on the horizontal plane.

2.15 Controlling Plane — A plane in a modular space grid by reference to which the theoretical positions of structural elements are determined (for example, a plane defining the boundary of a controlling zone, or the axis of a load-bearing wall or column).

2.16 Control (Universal) — Control in which all parts or units in a lot are examined in one or more aspects.

> NOTE — Universal control does not imply that the control is required to cover all the characteristics for which specifications have been laid down.

2.17 Controlling Dimension — A modular co-ordination dimension between controlling points, lines and planes (for example, storey height, distance between axes of columns, thickness of controlling zone).

2.18 Controlling Zone — A zone between controlling planes provided for roof, floor, load bearing walls or columns.

2.19 Co-ordination Dimension — A dimension of co-ordination space, which defines the relative positions of two or more components in an assembly according to the characteristics of the components which are relevant to the assembly.

2.20 Co-ordination Size — The size of a co-ordination dimension.

2.21 Co-ordination Face — The part of a profile relating to a modular reference system.

2.22 Co-ordination Plane — A plane by reference to which one component is co-ordinated with another.

2.23 Co-ordination Space — A space bounded by co-ordination planes allocated to a component, including allowances for tolerances and joint clearances.

2.24 Co-ordination Surface — Two-dimensional co-ordinating space.

2.25 Co-ordination Volume — Three-dimensional co-ordinating space.

2.26 Deviation — The difference between a size or position (actual, limit, etc) and the corresponding basic size or basic position.

2.27 Dimensional Co-ordination — A convention on related sizes for the co-ordinating dimensions of building components and buildings incorporating them, for their design, manufacture and assembly.

NOTE — The purpose of dimensional co-ordination is:
a) to permit the assembly of components at site without cutting or fitting, and
b) to permit the interchangeability of different components.

2.28 Element — A functional part of a building constructed from building materials and/or building components.

2.29 Finishing — All jobs for completion of a building and its enclosure, partitions and facings.

2.30 Fit — Relationship resulting from the difference, before assembly, between the sizes of two parts which are to be assembled.

2.31 Floor Height — The vertical distance measured at right angle from face to top of structural floor element or elements.

2.32 Functional Face — Any part of the profile designed to serve purpose other than co-ordination need not therefore be relating to the modular reference system.

2.33 Increment — Difference between to homologous dimensions of components of successive sizes.

2.34 Infra-modular Size — A size smaller than the basic module.

2.35 Inner Part — The part which is to be placed inside the other part.

2.36 International Modular System — Modular system adopted by the International Organization for Standardization.

2.37 Joint Clearance — The distance, between the joint faces of two components set side by side or one over the other, that is, the distance considered in the calculation of a work size in order to fit it.

2.38 Limits of Size — The two extreme permissible sizes between which the actual size should lie, the limits of size being included.

2.39 Linkage Dimension (Linkage Measurement) — Linkage measurements are the measurements of the building component that are determinative for its buildings and fitting with other components.

2.40 Location Deviation — Permissible location deviation is the largest permissible deviation of a component in a determined direction from the specified position.

2.41 Location Measurement — Location measurements are measurements given on an assembly drawing indicating the location of a component in relation to the modular grid.

2.42 Lower Deviation — The algebraic difference between the minimum limit of size and the corresponding basic size.

2.43 Lower Limit (Minimum Limit of Size) — *See* **2.47**.

2.44 Maximum Clearance — The greatest permissible total clearance which under the influence of the magnitude and location of the tolerances of two mating parts will occur between the two parts.

2.45 Maximum Limit of Size (Upper Limit) — The greater of two limits of size.

2.46 Minimum Clearance — The smallest permissible total clearance which under the influence of the magnitude and location of the tolerances of two mating parts will occur between the two parts.

2.47 Minimum Limit of Size (Lower Limit) — The lesser of the two limits of size.

2.48 Module — A unit of size used as an increment in dimensional coordination.

2.49 Modular Axis — A line in a modular grid, which defines the position in plan of main load.

2.50 Modular Component — A component whose co-ordination sizes are modular.

2.51 Modular Co-ordination — Dimensional co-ordination employing the basic module or a multimodal.

NOTE — The purposes of modular co-ordination are:
a) to reduce the variety of component sizes produced, and
b) to allow the building designer greater flexibility in the arrangement of components.

2.52 Modular Detail — Detailed drawing of a modular component or of a modular element or of the juxtaposition of components and elements indicating the relationship of the whole component or element or of its constituent parts (whether modular or non-modular) to a modular grid.

2.53 Modular Dimension — The distance between two lines or planes in the modular co-ordination.

2.54 Modular Drawing — Drawing executed according to the principles of modular co-ordination.

2.55 Modular Elements — An element whose co-ordination sizes are modular.

2.56 Modular Floor Height — The modular space between two modular reference points, lines or planes related to the height of structural floor component or elements expressed in terms of basic modules, multimodules or preferred modules. This is commonly known as controlling zone for horizontal elements in vertical co-ordination.

2.57 Modular Floor Plane — A horizontal modular plane continuous over the whole of each storey of a building and coinciding with the upper surface of floor coverings, the upper surface of a rough floor or the upper surface of a structural floor.

2.58 Modular Gap — The distance between one of two adjacent components and the modular plane that separates them.

2.59 Modular Grid — A rectangular co-ordinate reference system in which the distance between consecutive lines is the basic module or a multimodal. This multimodal may differ for each of the two dimensions of the grid.

2.60 Modular Increment — Increment expressed as a multiple of the basic module.

2.61 Modular Lines — A line formed by the intersection of two modular planes.

2.62 Modular Plane — A plane in a modular space grid.

2.63 Modular Planning Grid — Modular grid applied to the planning of a building.

2.64 Modular Point — Intersection of three modular planes or two modular lines.

2.65 Modular Room Height — The modular space between two modular controlling reference points, lines or planes separated by lowest point of floor zone expressed in terms of basic module, multimodule or preferred module.

2.66 Modular Size — A size that is multiple of the basic module.

2.67 Modular Space — Space bounded by modular planes which may be allotted to a modular component or to an aggregate of components or to a modular element or may be left empty.

2.68 Modular Space Grid — A three-dimensional rectangular co-ordinate reference system in which the distance between consecutive planes is the basic module or multimodal. This multimodal may differ for each of the three dimensions of the space grid.

2.69 Modular Storey Height — The modular space between two modular controlling reference points, lines or planes related to the finished floor level, rough floor level or structural floor level of two consecutive floors measured vertically at right angle expressed in terms of basic modules, multimodule or preferred module. The case of roof, other than flat roof, the storey height shall be vertical dimension from finished surface of floor level to top of bed plate or bottom of tie beam, or springing level according to the type of roof.

2.70 Modular Surface — Theoretical plane of a modular component, the principal dimensions of which are in accordance with modular Coordination.

2.71 Modular System — A system of rules for modular co-ordination.

2.72 Modular Volume — Theoretical volume of modular component, the principal dimensions of which are in accordance with modular coordination.

2.73 Modular Zone — A modular space between modular planes, which is provided for a component or group of components which do not necessarily fill the space, or which may be left empty.

2.74 Multimodule — A module whose size is a selected multiple of the basic module.

2.75 Neutral Zone — A space between two consecutive modular planes which is not modular.

2.76 Nominal Size — The dimension by which a component is designated as a matter of convenience.

2.77 Normal Joint — The total joint between two components which are both placed ideally and whose size is the mean value of the limit measurement.

2.78 Normal Joint Part — The joint occurring on the side of the modular plane belonging to the component, when the size of the element has its average value and is ideally placed.

2.79 Outer Part — The outer of two parts, one of which is to be placed inside the other.

2.80 Partition — Generally a non-load-bearing component used to divide a space into units.

2.81 Permissible Clearance — The greatest permissible clearance between two mating parts.

2.82 Permissible Deviation — The greatest permissible difference between an actual measurement and the corresponding nominal dimensions. This difference may be positive, negative or zero.

2.83 Planning Module — A multimodal adopted for specific applications.

2.84 Preferred Dimensions — These are modular measurements that are preferred to others, especially in standardization in order to ensure greater combinability.

2.85 Preferred Increment — The smallest interval between two consecutive sizes in any range of preferred dimension for spaces or components.

2.86 Raw Material — Substance of natural or artificial origin which may be used in the construction of building and in civil engineering.

2.87 Reference Grid — A two-dimensional reference system, generally rectangular.

2.88 Reference Plane — A plane in a reference network.

2.89 Reference Point — A point of a reference system.

2.90 Reference Space — A space assigned in a building to receive a component, assembly or element including, where appropriate, allowances for tolerances and

joint clearances. The space is bounded by reference planes which are not necessarily modular.

2.91 Reference Space Grid — A three-dimensional reference system.

2.92 Reference System — A system of points, lines and planes to which sizes and positions of components or elements may be related.

2.93 Rip — Space between bearing points, or between beams of Skelton.

2.94 Room Height — A vertical dimension between upper surface of finished floor level and bottom surface of any projected structural elements.

2.95 Section — Building material formed to a definite cross section but of unspecified length.

2.96 Semi modular Dimension — Dimension larger than the basic module and multiple of a submodule.

2.97 Servicing — The group of installations each of which supplies a particular service to a building.

2.98 Site Assembly — Application of a method of building by the positioning of prefabricated components on the site for assembly.

2.99 Site Works (Site Operations) — Application of a system of building on the site, including the making of certain functional elements.

2.100 Storey Height — The vertical distance between two consecutive upper surfaces of finished floor level measured vertically at right angle.

2.101 Structural Module — Planning module used to define the structure of a building.

2.102 Sub-modular increment — An increment of size, the value of which is a selected fraction of the basic module.

2.103 Technical Size — A size governed by important economic considerations. It may be modular only coincidentally.

2.104 Tolerance — The difference between the permissible limits of size or between the permissible limits of position.

2.105 To Modulate — To give building components and building linkage measurements which are based on a module, or which refer to a modular grid. Modulated measurements that are based on modular measurements.

2.106 Unit — Building material formed as a simple article with all three dimensions specified, complete in itself but intended to be part of a compound unit or complete building. Examples are brick, block, tile, etc.

2.107 Upper Deviation — The algebraic difference between the maximum limit of size and the corresponding basic size.

2.108 Upper Limit (Maximum Limit of Size) — *See* **2.45.**

2.109 Work Size — The size given with its permissible deviations, specified for manufacturing a component the actual size of which should be within these deviations under reference conditions.

2.110 Work Tolerance — A tolerance given for the fabrication of a component.

2.111 Zero Line — In a graphical representation of limit and fits, straight line to which the deviations are referred. The zero line is the line of zero deviation and represents the basic size.

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ANNEX A

(Committee Composition will be added after finalization)

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