NBS SPECIAL PUBLICATION 595

U.S. DEPARTMENT OF COMMERCE / National Bureau of Standards

INTERNATIONAL AND NATIONAL STANDARDS ON DIMENSIONAL COORDINATION, MODULAR COORDINATION, TOLERANCES AND JOINTS IN BUILDING

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International and National Standards on Dimensional Coordination, Modular Coordination, Tolerances and Joints in Building

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With the support of:

Energy, Building Technology and Standards
Research Division
Office of Policy Development and Research
Department of Housing and Urban Development
Washington, DC 20410

+ Special Publication

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Issued October 1980

Library of Congress Catalog Card Number: 80-600147

National Bureau of Standards Special Publication 595
Nat. Bur. Stand. (U.S.), Spec. Publ. 595, 154 pages (Oct. 1980)
CODEN: XNBSAV

Supersedes NBSIR 79-1791

U.S. GOVERNMENT PRINTING OFFICE
WASHINGTON: 1980

For sale by the Superintendent of Documents, U.S. Government Printing Office
Washington, D.C. 20402 - Price $5.00

ABSTRACT

This publication lists international, multi-national [regional], and national standards from over 50 countries dealing with the principles and application of dimensional or modular coordination in building, including joints and tolerances. It is based on an NBS Interim Report with the same title which was sent to national and multi-national standards organizations for review and comment.

The document shows the widespread adoption of the international building module of 100 mm (also designated as M) as a basis for dimensional rationalization in building design, production, and construction. The listing includes international (ISO) standards, multi-national (COPANT, ICAITI, CMEA) standards, and national standards from all major countries. Brief summaries of contents have been included where available, as well as titles in English for documents published in other languages. Appendixes illustrate international cooperation on the subject, a multilingual vocabulary of 20 key terms, and review comments received.

The main purpose of this publication is to assist the U.S. construction community by providing information on international precedent and, thus, to facilitate decisionmaking relative to new standards for dimensional [modular] coordination in building, especially those to be developed in metric (SI) units. Key findings have been summarized. The document may also assist exporters of building products and/or services.

Additional information, revisions, or other changes will be included in future supplements.

Key words: Building module; dimensional coordination; metric design and construction; modular coordination; standards.

SUPPORT IN THE PREPARATION OF THIS PUBLICATION

This NBS Special Publication 595 supersedes Interim Report NBSIR 79-1791, which had the same title and is referenced as a source document. The Interim Report was issued in limited quantity in August 1979, and this Special Publication contains additional information, amendments, and other data received as a result of international review and comment from 39 standards organizations. For availability, refer to Note on page v.

This NBS Special Publication was prepared with the support of the Energy, Building Technology and Standards Research Division, Office of Policy Development and Research, U.S. Department of Housing and Urban Development. The Australian Government has supported the preparation of this report by making available the services of the author, Hans J. Milton, B.Arch., M. Bdg. Sc., M.B.A, FRAIA, Assistant Secretary, Technology Division, Department of Housing and Construction.

ACKNOWLEDGEMENTS

Contributions to this publication have come from many different organizations and individuals, and appropriate acknowledgements have been given throughout the document.

The principal information sources were:

1. Replies from multi-national and national standards organizations in response to a request for verification, modification, or supplementation of interim data presented in NBSIR 79-1791
   a. from or on behalf of: COPANT, ICAITI, and CMEA (Part 2)
   b. from or on behalf of the national standards bodies of:

      Argentina, Australia, Austria, Belgium, Republic of China, Colombia, Cyprus, Czechoslovakia, Denmark, Egypt, Finland, Federal Republic of Germany, Democratic Republic of Germany, Greece, Hungary, India, Republic of Ireland, Israel, Italy, Jamaica, Japan, Mexico, Netherlands, New Zealand, Norway, Peru, Philippines, Poland, South Africa, Sweden, Switzerland, Thailand, Turkey, and the United Kingdom (Parts 3 - 7)

   c. from standards bodies of countries that do not have standards on modular coordination at present:

      Ethiopia, Malawi.

2. Publications of the International Organization for Standardization [ISO], including:
   a. ISO MEMENTO 1980
      Information on member bodies of ISO, including titles and scope of work of relevant Technical Divisions, Technical Committees, Subcommittees and Working Groups.
   b. ISO CATALOGUE 1980 and Supplement 1 [April 1980]
      Listing of ISO standards and recommendations, including titles, designations, and number of pages.

c. ISO TECHNICAL PROGRAMME [January 1980]
Listing of draft international standards and draft proposals, their status, and expected target date for publication.

d. PARTICIPATION IN ISO COMMITTEES [January 1980]
Tabular listing of national membership and type of participation in ISO Technical Divisions and Technical Committees.

e. ISO BULLETINS
Relevant information on ISO activities and changes in membership.

3. Standards Catalogs, Yearbooks, or Lists issued by foreign national standards organizations.
Where such documents have contributed information presented in this publication, they are referenced appropriately.

4. The National Bureau of Standards [NBS] Collection of Standards

The collection of over 250,000 standards, specifications, test methods, codes, and recommended practices issued by U.S., foreign national, and international standardizing organizations is maintained by the Standards Information Services, Office of Engineering Standards, National Engineering Laboratory, NBS.

The majority of the standards listed in this document have been accessed and examined directly in the NBS Collection of Standards.

5. Some useful comparative information on the worldwide status, in 1972, of modular coordination standards issued by international organizations and 34 national standards bodies, is contained in a document entitled: "Modulordnung, Toleranzen, Fugen und Verbindungen: Teil III - Weltweite Liste der Normen" [Modular co-ordination, tolerances, joints and jointing: Part III - Worldwide listing of standards]; Hochschule für Angewandte Kunst, Wien [Vienna], 1972; 14 pages.

The document was part of a series of three publications dealing with published information on modular coordination in building--a project sponsored by the Bundesministerium für Raumordnung, Bauwesen und Städtebau, Bonn, Bundesrepublik Deutschland [Federal Ministry of Housing, Building and Planning, Bonn, Federal Republic of Germany]. The report was compiled by Dr. Heidrun Bauer and Dipl. Ing. Heiner Fürst, Wien, and coordinated by the Fachnormenausschuß Bauwesen, Deutsches Institut für Normung [DIN] e.V., Berlin.

Note on Availability

NBS Special Publication 595 will be available through the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402, by quoting the appropriate stock number, and through the National Technical Information Service [NTIS], Springfield, Virginia 22161.
Due to its preliminary nature, Interim Report NBSIR 79-1791 with the same title as NBS SP 595, was distributed for review and comment only, mainly to national standards bodies and dimensional coordination experts. (See Appendix 5 for review request).

PREFACE

The need for an agreed system of dimensional coordination in building has been recognized in all countries where the technical development of the building industry has reached a certain level of mechanization, irrespective of the country's economic, social, or technical policies in other fields. The systematic selection of coordinating dimensions, derived from a basic module, becomes the foundation for the coordination of prefabricated components and site-produced elements and, simultaneously, the rationalization of design, production and construction.

As greater industrialization is introduced into the building process, some aspects of modern building technology show international convergence, for example, preferences in building dimensions and product sizes. Therefore, much could be gained by reaching international agreements on common approaches to dimensional coordination, based on the choice of the same module, as well as selected multiples thereof. During the past 30 years there has been significant international and multi-national collaboration in the development of concepts and standards for modular and dimensional coordination.

The basic module of 100 mm, which in international standards and many national standards is also represented by the symbol "M", has emerged as the universally preferred basic unit of size. It has been given greater weight by general acceptance during the conversion to metric units in English-speaking countries. In nearly all instances, these countries combined their change to metric units with a simultaneous program of metric dimensional coordination in the expectation of significant economic and other benefits.

The ideas that have led to "modular and dimensional coordination in building" were pioneered in the United States. However, national standards were based on the 4-inch module which is slightly larger than the 100 mm module. The impending change to SI in the U.S. offers the construction community the great opportunity to combine the dimensional coordination experience at the national and international level with the conversion process. The fact that the U.S. is the last major nation to adopt metric measurement gives it a unique chance to develop up-to-date, simple, and internationally compatible standards for the coordination of dimensions in building.

As a preparatory step in this process, the National Bureau of Standards prepared an Interim Report entitled "International and National Standards on Dimensional Coordination, Modular Coordination, Tolerances and Joints in Building." That document, issued in limited quantities due to its preliminary nature, provided a basic listing of all known standards on dimensional/modular coordination, derived product standards using modular coordinating sizes, and ancillary standards on the application and communication of modular concepts. The Interim Report was sent out for review and comment to all member bodies of the International Organization for Standardization (ISO), a select number of other organizations, and to individual members of the CIB Working Commission W-24, Dimensional and Modular Coordination (also known as the International Modular Group-IMG). This Special Publication 595 is the outcome of many, thoughtful replies.

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BACKGROUND

This special publication shows that standards on dimensional or modular coordination[1] in building, based on the internationally agreed 100 mm module[2], form an integral part of the technical data bank for construction in most countries. In some nations, the application of such standards is mandated in the national building regulations.

International standards and recommendations dealing with dimensional and modular coordination in building have been developed under the auspices of the International Organization for Standardization [ISO], and have been published since 1969.[3] The work in ISO falls under the jurisdiction of Technical Committee [TC] 59, Building Construction, and various of its Subcommittees [SC] and Working Groups [WG].[4] At present, TC 59 comprises 55 member nations, 32 of which are listed as active participants in the work.[5] Many member nations have adopted the ISO standards or recommendations on dimensional or modular coordination[1] in part or in full, or are generally in accord with the content of ISO standards, and/or include references to ISO standards.[6] In addition to ISO, there are a number of regional or sub-regional standards groups working on unified recommendations for dimensional or modular coordination among their member nations.

Dimensional coordination in building also has been the subject of a number of studies and reports sponsored by the United Nations, and it forms part of the policy statement of the United Nations Economic Commission for Europe [UN/ECE] project on the harmonization of building regulations among the 34 member governments.[7] Most of the developmental work on international standards in this subject area is now carried out within Working Commission W-24, Dimensional and Modular Coordination, of the International Council for Building Research Studies and Documentation [CIB], which is also known as the International Modular Group [IMG].

Whereas individual nations have chosen particular approaches and preferences to suit their building technology and national building needs, the general principles and basis of dimensional coordination founded on the 100 mm building module have gained universal acceptance.

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1 *In recent years, the distinction between "dimensional" and "modular" coordination has become obscured. In general, dimensional coordination can be interpreted as a comprehensive approach to the coordination of building geometry and building products through a set of dimensional preferences, including tolerances and guidelines for joints. "Modular coordination" has been defined in ISO Standard 1791 - 1973 as "dimensional coordination based on the 100 mm module."*

2 *The standards of some countries show the basic module as 10 cm or 1 dm, and/or associate it with the symbol "M". The use of millimeters (mm) generally eliminates the need for decimal or modular fractions.*

3 *ISO standards, draft standards, and draft proposals dealing with modular coordination in building are listed and abstracted in Part 1 of this publication.*

4 *A complete list of Subcommittees and Working Groups in ISO TC 59 is shown in Appendix 1.*

5 *A complete list of participating nations is shown in Appendix 2.*

6 *A matrix showing voting on ISO standards by national standards bodies, and their adoption or referencing in national standards is included as Figure 9.1 in Part 9 of this publication.*

7 *The policy states, inter alia: "to promote the uniform adoption and use of a fully developed system of dimensional coordination."*

PURPOSE OF THIS PUBLICATION

The principal purpose of NBS Special Publication 595 is to provide a comprehensive and up-to-date listing of international, multi-national, and national standards in the subject area of dimensional and/or modular coordination, and the related application of preferred sizes of components and assemblies in dimensionally coordinated building construction.

This publication replaces Interim Report NBSIR 79-1791, with the same title, which was submitted to multi-national and national standards organizations in September 1979 for review. With the benefit of this review and comment, the revised listing shows extensive adoption of the principles of dimensional/modular coordination in building standards all over the world and points to greater harmonization in this subject area. But, for historical or technical reasons, some nations have developed special approaches to coordination of building and building product dimensions or have used special sets of preferred dimensions and sizes to suit their particular industrial environment. Where such divergences are extensive, comments have been included to provide explanations.

A major purpose of this publication is to assist the U.S. building community by providing data relevant to the development of national standards for dimensional coordination in building, based on the international building module of 100 mm, which has already received general endorsement by major groups concerned with metric planning and metric standards development. An awareness of the nature and content of international and foreign national standards in this subject area should make it possible to develop U.S. standards that can be in general harmony with worldwide precedent and, therefore, further opportunities for the exchange of technical information and the use of metric U.S. building products, equipment, and design or construction services in other countries.

The document may also be useful to CIB WG-24/IMG in the development of technical material on dimensional and modular coordination in building and to ISO TC 59 in the technical review and periodic revision of existing ISO standards, and the development of additional standards. At the national standards level, the information in this publication may assist national standards organizations in the review and updating of standards on dimensional/modular coordination dating from the pre-ISO-standards era, as well as the development of new standards in harmony with international precedent.

Additional information, revisions, and/or corrections will be received with interest.

The following groups are targeted as users of this publication: standards writers and standardization committees; design professionals, contractors, and building materials manufacturers with international work projects; research and development groups concerned with dimensional aspects in building; and lecturers or instructors in dimensionally coordinated building technology.

PRESENTATION OF INFORMATION

Standards Organizations and Committees

For each national or multi-national organization, the postal address is given as shown in ISO Memento 1980. Where a particular standards group or sub-organization is responsible for building standards, this is also indicated.

Where available, the technical committee(s) dealing with dimensional or modular coordination, tolerances, or joints in building are identified, as well as the technical secretariat. This information should make it possible for users of this document to address specific requests for information directly to the body concerned.

Listing of Standards

Standards have been listed in very general categories, as any further subdivision into specific subject areas was beyond the scope of the project. An attempt has been made to separate standards into groups dealing with principles, component or assembly sizes, and tolerances and joints; however, some problems have been encountered in maintaining this pattern in all foreign language standards.

Titles and Translations of Titles

Titles of national or international standards issued in English have been underlined. Where a formal English translation is included on the actual standard, or was provided by the issuing organization in reply to NBSIR 79-1791, the title in the national language is underlined and the English translation is given below, in brackets []. Additional translations of standards titles will be received with interest.

Paper Sizes and Number of Pages

Where available, both paper size and number of pages of text have been included to facilitate reference and to provide an approximation of the extent of the subject matter covered. In addition, the size of the document can be related to postage costs.

In general, the international A4 paper size [210 x 297 mm] predominates.

Spelling Used in This Document

In general, standards titles have been listed as shown by the respective national standards bodies. In the descriptive information, American spelling has been used. Examples of different spelling occur in the following words: coordination *vs.* co-ordination; story *vs.* storey; fiber *vs.* fibre; aluminum *vs.* aluminium; and, meter *vs.* metre.

Terms and Meanings

For some building terms, different words are used in American English and English; for example, elevator *vs.* lift; board *vs.* sheet, etc. Where necessary for the interpretation of data, the American term has been shown in brackets [] behind the English version used in standards titles.

STRUCTURE OF THE DOCUMENT

This publication has been divided into 10 parts and 6 appendixes.

Part 1 contains a listing and abstracts of international standards, draft international standards, and draft proposals dealing with modular coordination and associated subjects. These standards are predominantly under the jurisdiction of Technical Committee [TC] 59, Building Construction, although a number of standards issued by TC 162, Doors and Windows, and TC 178, Lifts, Escalators, and Moving Machinery--both formerly part of TC 59--have been referenced.

ISO Standards are issued in English and French.

Part 2 contains a listing of multi-national standards dealing with modular coordination in building and associated subjects, issued at the regional level by cooperative standards organizations, such as:

2.1 COPANT (Comisión Panamericana de Normas Técnicas)
2.2 ICAITI (Instituto Centro Americano de Investigación y Technología Industrial)
2.3 CMEA (Council for Mutual Economic Aid)

In addition, cooperative efforts in the preparation of standards dealing with modular coordination have been made by the Scandinavian countries Denmark, Finland, Norway, and Sweden, which has resulted in the publication of a number of standards with harmonized technical content.

A number of national standards acknowledge that some material has been derived from national standards of other countries, which is indicative of the commonality of the technical subject matter.

Part 3 lists national standards issued in the English language, dealing with dimensional/modular coordination in building and associated subjects. Where available, abstracts of the technical content have been included. Standards from the following countries are listed:

3.1 AUSTRALIA (Standards Association of Australia)
3.2 CANADA (Standards Council of Canada)
3.3 CYPRUS (Cyprus Organization for Standards and Control of Quality)
3.4 INDIA (Indian Standards Institution)
3.5 Republic of IRELAND (Institute for Industrial Research & Standards)
3.6 JAMAICA (Jamaican Bureau of Standards)
3.7 MALAYSIA (Standards and Industrial Research Institute of Malaysia)
3.8 NEW ZEALAND (Standards Association of New Zealand)
3.9 NIGERIA (Nigerian Standards Organization)
3.10 PHILIPPINES (Philippines Bureau of Standards)
3.11 SINGAPORE (Singapore Institute of Standards & Industrial Research)
3.12 SOUTH AFRICA (South African Bureau of Standards)
3.13 SRI LANKA (Bureau of Ceylon Standards)
3.14 UNITED KINGDOM (British Standards Institution)
3.15 ZAMBIA (Zambian Standards Institute)
3.16 ZIMBABWE (Standards Association of Central Africa)

Incomplete information or no information was available from: Bangladesh, Ghana, Hong Kong, Ivory Coast, Kenya, and Pakistan.

Part 4 contains a listing of national standards from Latin American countries, dealing with modular coordination in building, and issued in Spanish or Portuguese. Some of the standards listed are direct duplicates of COPANT standards, prepared at the regional level [2.1]. Standards from the following countries are included:

4.1 ARGENTINA (Instituto Argentino de Racionalización de Materiales)
4.2 BRAZIL (Associação Brasileira de Normas Técnicas)
4.3 CHILE (Instituto Nacional de Normalización)
4.4 COLOMBIA (Instituto Colombiano de Normas Técnicas)
4.5 MEXICO (Dirección General de Normas)
4.6 PERU (Instituto de Investigación Técnologia Industrial y de Normas Técnicas)
4.7 URUGUAY (Instituto Uruguayo de Normas Técnicas)
4.8 VENEZUELA (Comisión Venezolana de Normas Industriales)

No information or incomplete information was available from: Bolivia, Cuba, Ecuador, and Paraguay.
The Central American countries of Costa Rica, El Salvador, Guatemala, Honduras, and Nicaragua, use standards issued by ICAITI [2.2].

Part 5 contains a listing of national standards from Western European countries, dealing with modular coordination in building and associated subjects, and issued in languages other than English. However, in most instances, the standards have English subtitles and, in some cases, are available as English translations.
Standards from the following countries are included:

5.1 AUSTRIA (Österreichisches Normungsinstitut)
5.2 BELGIUM (Institut Belge de Normalisation)
5.3 DENMARK (Dansk Standardiseringsraad)
5.4 FINLAND (Suomen Standardisoimisliitto r.y.)
5.5 FRANCE (Association Française de Normalisation)
5.6 Federal Republic of GERMANY (Deutsches Institut für Normung)
5.7 GREECE (Hellenic Organization for Standardization)
5.8 ITALY (Ente Nazionale Italiano di Unificazione)
5.9 NETHERLANDS (Nederlands Normalisatie-Instituut)
5.10 NORWAY (Norges Standardiseringsforbund)
5.11 PORTUGAL (Direcção-Geral de Qualidade)
5.12 SPAIN (Instituto Nacional de Racionalización y Normalización)
5.13 SWEDEN (Standardiseringskommissionen i Sverige)
5.14 SWITZERLAND (Schweizerische Normen-Vereinigung)
5.15 TURKEY (Türk Standardlari Enstitüsü)

Part 6 contains a listing of national standards from Eastern European countries, dealing with modular coordination in building and associated subjects. There has been some collaboration on these standards through the Permanent Commission on Building of the Council for Mutual Economic Aid (CMEA). [CMEA standards are shown in 2.3]. Where available, translations of standards titles have been provided.
Replies to the request for review of information shown in NBSIR 79-1791 were received from the national standards organizations of Czechoslovakia, German Democratic Republic, Hungary, and Poland.

Standards from the following countries are included:

6.1 BULGARIA (State Committee for Standardization)
6.2 CZECHOSLOVAKIA (Úřad pro normalizaci a měření)
6.3 GERMAN DEMOCRATIC REPUBLIC (Ministerrat der DDR, Amt für Standardisierung, Meßwesen und Warenprüfung)
6.4 HUNGARY (Magyar Szabvànyügyi Hivatal)
6.5 POLAND (Polski Komitet Normalizacji, Miar i Jakości)
6.6 ROMANIA (Institutul Român de Standardizare)
6.7 U.S.S.R. (Gosudarstvennyj Komitet SSSR)
6.8 YUGOSLAVIA (Jugoslavenski zavod za Standardizaciju)

In the absence of English translations or subtitles, the listings for some countries in this Part may be incomplete. No information was available for Albania.

Part 7 contains a listing of national standards from countries not shown under Parts 3 to 6. In general, the standards issued in these countries are printed in alphabets or characters other than Roman, Cyrillic or Greek letters. However, English translations are available for many of the standards listed, as indicated in the text.* Some countries also show subtitles in English.
Standards from the following countries are included:

7.1 Arab Republic of EGYPT (Egyptian Organization for Standardization)
7.2 IRAQ (Iraqui Organization for Standards)
7.3 ISRAEL (Standards Institution of Israel)*
7.4 JAPAN (Japanese Industrial Standards Committee)*
7.5 Republic of KOREA (Korean Bureau of Standards)*
7.6 TAIWAN [Republic of China] (National Bureau of Standards)
7.7 THAILAND (Thai Industrial Standards Institute)

No information, or incomplete information was available from the other countries affiliated with the International Organization for Standardization [ISO], including: Algeria, Peoples Republic of China, Indonesia, Iran, Democratic Peoples Republic of Korea, Lebanon, Libyan Arab Jamahiriya, Morocco, Saudi Arabia, Sudan, and the Socialist Republic of Vietnam.

An acknowledgment of NBSIR 79-1791 was received from Ethiopia, with the information that no standards on modular coordination in building exist at this point in time.

Part 8 contains a listing and explanatory information dealing with national standards on dimensional coordination in building issued in the United States. This listing has been included for reference purposes only, as dimensions generally relate to U.S. customary units, using the 4-inch [101.6 mm] module. However, ANSI/ASTM E577-76, "Standard for Dimensional Coordination of Rectilinear Building Parts and Systems," acknowledges the 100 mm module, and introduces a concept of a basic incremental dimension (U) in lieu of the building module (M), with a footnote: "For dimensional coordination in SI units, the basic incremental dimension, U, shall have the value of 100 mm; for dimensional coordination in U.S. customary units, the basic incremental dimension, U, shall have the value of 4 in."

Part 9 provides information on the extent of acceptance of ISO standards and recommendations dealing with modular coordination in building, tolerances and joints, in national standards.

A matrix has been developed to show, for 15 key ISO standards, the voting by national standards organizations in terms of approval (a) or disapproval on technical grounds (d), the extent of concurrence with the ISO recommendations in standards issued subsequently (A, B, C, D, and E), and the referencing of ISO standards in national standards (R).

Responses were provided by 20 national standards bodies, based upon an earlier matrix included in the NBS Interim Report NBSIR 79-1791.

Part 10 deals with vocabularies (glossaries of terms) for modular coordination in building and associated subjects, and provides information on multi-lingual standards or vocabularies issued by various countries.

This comparison has been extended in Appendix 4, a multi-lingual vocabulary of 20 key terms from ISO standards 1791-1973 and 1803-1973.

Appendix 1 shows the scope and technical committee structure of ISO TC 59, the Technical Committee on Building Construction, created in 1947.

Appendix 2 shows the participation, by member nations, in the work of ISO Technical Division 3, Building, and ISO Technical Committee 59, Building Construction.

Appendix 3 provides a listing of languages in which international, multinational and national standards are issued.

Appendix 4 provides a multi-lingual vocabulary of the principal terms used in modular coordination in building, including tolerances and joints.

Appendix 5 shows a copy of the letter of request for review of NBSIR 79-1791 sent to national and multi-national standards organizations, and a copy of the review questionnaire.

SUMMARY OF FINDINGS

During the detailed examination of international, multi-national, and a large number of national standards dealing with modular or dimensional coordination in building (including joints and tolerances), and as a result of replies from foreign national standards organizations to NBS Interim Report NBSIR 79-1791, a number of findings were made. These findings should provide useful guidelines for the development of future U.S. national standards and reference documents on dimensional/modular coordination in metric (SI) units.

The key findings have been summarized below:

1. Historical Background and Development

The concepts of modular or dimensional coordination are not new to the U.S. building community, having first been proposed in the 1920's and 1930's. The most significant pioneering work was carried out by Albert Farwell Bemis (1870 - 1936), whose heirs established a foundation to advance the industry-wide development of coordinated and preferred dimensions in building, based on a 4-inch module. Although a committee on the coordination of dimensions in building was formed in 1939 [ASA Committee A 62], the first national standard was not issued until 1945 (A 62.1, Basis for the Coordination of Dimensions of Building Materials and Equipment).

Meanwhile, the first national standard on modular coordination based on the 100 mm (10 cm) module was published in France in September 1942 (NF P 01-001, "Dimensions des constructions - Modulation"). In 1946, Lennart Bergvall and Erik Dahlberg of Sweden authored a "Report on Modular Coordination," based on extensive studies of the subject. The proposals endorsed the 100 mm building module, but the principles for coordination were in general agreement with U.S. work. Between 1948 and 1952, eight European countries issued standards for modular coordination using the 100 mm module: Belgium (1948), Finland (1948), Italy (1949), Poland (1950), Bulgaria (1951), Norway (1951), and Sweden (1952).

From 1955 to 1960, modular coordination concepts were advanced by a cooperative program of the European Productivity Agency (EPA). After 1960, developmental work was continued by the International Modular Group (IMG), which has become Working Commission W-24 of the International Council for Building Research Studies and Documentation (CIB). Multi-national efforts on modular coordination started in Eastern European countries in 1959, within the Permanent Commission on Building of the Council of Mutual Economic Aid (CMEA), and in the Latin American countries in 1963, within the Pan American Standards Commission (COPANT). The most significant work is now carried out within the International Organization for Standardization (ISO).

Two studies on modular/dimensional coordination were sponsored by the United Nations. They are described in the following reports: "Modular Co-ordination in Building - Asia, Europe and the Americas;" U.N., New York, 1966; and, "Dimensional Co-ordination in Building - Current Trends and Policies in ECE Countries;" U.N., New York, 1974.

2. International Recommendations and Standards

Within the International Organization for Standardization (ISO), the subject area of modular coordination in building has been studied from the early 1960's onwards, and a number of Subcommittees (SC) or Technical Committee (TC) 59, Building Construction, were formed to prepare standards on specific aspects. The first ISO Recommendations dealing with modular coordination were issued in 1969, and, since 1973, a range of ISO Standards have provided an international basis for modular coordination in building. ISO Standards, Recommendations, Draft International Standards (DIS), and Draft Proposals (DP), are shown in Part 1.

Nowadays, over fifty nations participate in the work of TC 59, and 44 member nations have recorded votes on one or more of the ISO Standards or Recommendations for modular coordination and associated subjects.

Even though the technical content of ISO Standards is not always endorsed unanimously in the voting of member bodies, there is strong evidence of partial or near complete adoption of material from ISO Standards in many national standards on modular or dimensional coordination, particularly in the standards of developing nations. This indicates a greater worldwide convergence in dimensional factors relating to building and construction technology.

This trend is likely to continue. In addition, national standards issued prior to their ISO counterparts will come up for their regular review, and it is quite likely that ISO standards will be looked to for any amendments or revisions intended to take account of worldwide developments, or, at least, be cross-referenced in such documents.

3. The International Building Module and National Standards

With the exception of the United States, which still uses the 4-inch (101.6 mm) building module, the international 100 mm module can be found in the national standards of over fifty countries for which data were provided or are available. A number of other countries are now in the process of determining their standards needs in the field of modular coordination.

In many foreign national standards, earlier references to a building module of 10 centimeters (cm), or 1 decimeter (dm), have been replaced during recent revisions with references to a 100 mm module. The use of millimeters permits a single measurement unit for all applications in design, production and construction, from small dimensions and tolerances right through to large element and building dimensions. Any modular dimension is immediately visible by a value with two zeros (00) at the end; in addition, the integer multiplier is visible, so that one can immediately see whether a value is preferred or not.

In early modular coordination standards, the building module was represented by the symbol M, and multiples were indicated by the

appropriate multiplier as prefix; for example 6M to represent 600 mm, or 48M to represent 4800 mm. Recent national standards exhibit a drift away from the use of the symbol M, and a preference for direct dimensional statements in millimeters.

4. Modular vs. Dimensional Coordination

The distinctions between the terms "modular coordination" and "dimensional coordination" in building have become obscured and, in some respects, now cover the same subject area with the acceptance of the international building module of 100 mm as basis for coordination.

In English-speaking countries, there has been widespread use of the terms "dimensional coordination," "coordination of dimensions," or "coordinated preferred dimensions," in lieu of modular coordination, although the latter term is widely used. At the international level and in the great majority of national standards, however, the term "modular coordination" has been preferred in standards titles.

Both modular and dimensional coordination are designed to achieve "dimensional rationalization" of buildings and building components through sensible limitation of sizes, and in order to obtain economic and functional benefits in design, production, and construction.

Traditionally, modular coordination has been associated with the use of a modular grid, or multimodular grids, to provide dimensional guidance and control. By contrast, dimensional coordination has placed the emphasis on specific planes or lines for coordination and control, based on functional considerations, and generally--though not necessarily--coincident with a modular grid. Dimensional coordination is understood by some to represent a fully comprehensive approach to building and product geometry, including coordinating dimensions for buildings and spaces; controlling sizes for building products and elements, including limits of size, fit, and tolerances; joint design; and, positioning and assembly in construction.

The primary field of application for both modular and dimensional coordination is in rectilinear building forms, elements, systems, and components.

5. Subject Areas Covered

This document has concentrated on standards which specifically deal with modular or dimensional coordination, and has provided supplementary listings of standards in which modular dimensions, sizes, or practices are mentioned. A more detailed subdivision was not feasible due to the differences of approach in different national standards and the varying extent of information covered, with some degree of overlap between individual subject areas. For some nations, standards on modular coordination have been listed in their numerical order, or sequence of issue.

However, five broad subject areas can be distinguished and might be used in any subsequent listing of standards:

a. fundamental principles - including definitions, aims and objectives, basic module and derived modules (multimodules, submodules), space reference concepts (grids, planes, lines), and interchangeability;

b. guidelines for pre-coordination in design - including horizontal and vertical controlling dimensions, space standards, functional spans and sizes, dimensional variations, and joint design;

c. recommendations for production - including sizes of prefabricated elements, assemblies, and components (coordinating and work sizes), limits of size and tolerances, and junctions of components;

d. recommendations for construction - including laying out, positioning, limits and fits, and jointing; and,

e. communication - including symbols and drawing practice.

Even this division has some areas of overlap; for example, the joint and its detailing represent an important aspect of modular coordination, with different implications in each activity phase of building.

6. Divergence in National Standards

While there is broad agreement on the basic principles and intentions that underlie modular coordination in building design and its application in production and construction, individual national standards show a degree of divergence in dimensional preferences. Some of the differences are due to historical factors and preferences, others have functional or technological overtones.

In design-related standards, the greatest divergence can be found in preferences for vertical controlling dimensions, such as floor-to-floor (story) heights and floor-to-ceiling (room) heights. While 100 mm increments offer too wide a range of choices, a restriction to multiples of 300 mm will not necessarily offer economic choices. The use of multiples of 200 mm, traditional in some countries, will only result in coincidence of dimensions every 600 mm; for example, at 2400 mm, 3000 mm, 3600 mm, etc. This issue has not been resolved at the international level. A proposed ISO Standard (2849), "Multimodules for vertical coordinating dimensions," reached print proof stage in 1973, but was never issued. Three countries expressed disapproval on technical grounds, and the U.S. did not register a vote to indicate its own preferences which, traditionally, have had a stronger link with the 200 mm increment for vertical dimensions than the 300 mm increment (8 inches and 12 inches, respectively).

In production and construction related standards, other considerations such as national building regulations, national building programs, and industry practices play a major role, and divergences can be found, for example, in the preferences for sizes of building boards (sheets). Here, however, an ISO Standard (ISO 2777-1974) provides guidance for future harmonization.

7. Special Approaches

Some national standards on modular or dimensional coordination exemplify special approaches and/or modifications of ISO recommendations that are noteworthy.

Germany, for example had developed its building dimensions and sizes around an octametric module of 125 mm, laid down in DIN 4172 of 1955. However, in line with international trends, it is now transferring to the 100 mm building module, and has prepared a series of standards on modular coordination in building using the 100 mm module since 1976.

The United Kingdom, on the other hand, has based its building dimensions and sizes on a first preference of 300 mm, rather than 100 mm which has been shown as a second preference. Until recently, the term "modular coordination" was avoided, but has now been used in British Standard BS 5578:Part 3:1978, "Modular coordination: Specification for coordinating dimensions for stairs and stair openings," which agrees in full with ISO 3881. There have been repeated moves in Britain to move towards the 100 mm module as fundamental unit, and to use 300 mm as preferred multimodule. However, it has been argued that the adoption of a larger first preference has helped to limit the variety of sizes and dimensions that might otherwise have been obtained.

The Netherlands have taken a novel and quite different approach to coordination by suggesting that position coordination is a key factor in building design and construction. Netherlands Standard NEN 2880-1977 illustrates a coordinating system based on modular tartan grids (band grids) for the rigorous and predetermined positioning of element groups in building. By providing "rights of way," the band grid reduces conflicts between structural elements and services. The merits of this specific approach to modular planning remain to be seen.

8. Comprehensive National Standards on Modular/Dimensional Coordination

The most comprehensive application of modular concepts is evident in the building standards of Scandinavian countries, where modular dimensions have become an integral part of the geometry of buildings and building products.

Sweden leads the field with a total of 90 national standards issued mainly in the past 10 years, which deal with the principles and practical application of modular coordination and modular dimensions.

The United Kingdom and the Republic of Ireland (Eire), similarly, have prepared a large number of standards and associated guidelines for modular/dimensional coordination, partly in response to information needs and changes in dimensions and sizes caused by the change to metric (SI) units in building.

SUMMARY OF FINDINGS -

9. Mandatory Application of Modular Coordination Standards

In a number of countries, national standards for modular/dimensional coordination in building are emphasized further by way of reference in national building regulations or codes, thereby ensuring that the concepts are considered in building design and construction.

Additionally, some countries have made modular coordination mandatory in governmental building projects, or building projects funded with public funds. In general, this approach has been taken to increase the productivity in building and/or to conserve scarce resources.

In practical terms, a building designed and built on the basis of modular coordination cannot be distinguished visually from a similar building without dimensional rationalization.

10. Metric Conversion and Modular/Dimensional Coordination

In all English-speaking nations that have changed from a measurement system based on feet, inches, and fractions to metric (SI) units, the conversion in the construction industries has been combined with a move to modular or dimensional coordination based on the international building module of 100 mm. In general, this has meant a 1.6 percent reduction in linear dimensions from 4 inches (101.6 mm) and its whole multiples, to 100 mm and whole multiples. The exception was the United Kingdom, where a first preference dimension of 300 mm was chosen as basic size.

Modular/dimensional coordination in metric units has been more auspicious for the following reasons:

a. any modular dimension is directly visible; for example, 3200 mm is 32 modules, and is more visible than 10'-8", which represents 32 modules of 4";

b. the square module for area considerations bears a direct relationship to the unit for area, the square meter (m^2), by a decimal factor of 0.01. This facilitates calculations and estimating;

c. the cubic module for volume considerations is exactly equal to 1 liter (L), thus simplifying many calculations, and represents a decimal factor of 0.001 of the cubic meter (m^3);

d. tolerances, limits of fit, clearances and joints can be shown in whole numbers in millimeters, without having to resort to common fractions; and,

e. scale ratios up to 1:100 represent the module as a whole number in millimeters, thus simplifying drawings and their interpretation.

Because of the similarities in building technology, Canada provides the most useful precedent in its approach to metric dimensional coordination. Excellent guidance is contained in the Canadian Series of Standards for "Metric Dimensional Coordination in Building," issued as CAN3-A.31.M in 1975.

Part 1 INTERNATIONAL STANDARDS (ISO)

International Organization for Standardization [ISO]
Central Secretariat
1, rue de Varembé
Case postale 56
CH-1221 Genève 20
Switzerland/Suisse

Technical Committees: ISO TC 59, Building Construction [Created 1947]
Secretariat: AFNOR (Association française de normalisation)
For complete details on the scope of TC 59, its Subcommittees (SC) and Working Groups (WG), and Secretariats, see Appendix 1.

SC 1, Dimensional co-ordination
- WG 1, Preferred sizes
- WG 2, Multimodules
- WG 5, "Intermodular" dimensions
- WG 6, Modular coordination of services and drainage
- WG 7, Modular coordination of joints

SC 2, Terminology, symbols and unification of language
SC 3, Functional/user requirements and performance in building construction
SC 4, Limits and fits in building construction
SC 5, Joints
SC 6, Structure, external envelope, internal subdivision
SC 7, Equipment, services and drainage
SC 8, Jointing products
SC 11, Kitchen equipment

A number of former Subcommittees have become separate Technical Committees.

Information Sources: ISO Memento 1980;
ISO Catalogue 1980, and Supplements;
ISO Technical Programme, January 1980; and,
NBS Collection of ISO Standards.

International [ISO] standards are published in English and French.

ISO Standards on Modular Coordination in Building:

ISO 1006-1973 Modular co-ordination - Basic module (2 pages A4)
Fixes the definitions, symbol and value of the basic module for use in the construction of buildings of all types built according to the principles of modular co-ordination.
The basic module has the internationally standardized value of 100 mm, and may be represented by the symbol M.

ISO 1040-1973 Modular co-ordination - Multimodules for horizontal co-ordinating dimensions (1 page A4)
Fixes the values of several multimodules for horizontal co-ordinating dimensions used in modular co-ordination. The values of the multimodules are: 3M (300 mm); 6M (600 mm); 12M (1200 mm); (15M (1500 mm)); 30M (3000 mm); and, 60M (6000 mm). The multimodules 3M and 6M are intended mainly for housing, and 15M signifies a size of limited applicability which will appear only in specific national standards.

ISO 1789-1973 Modular co-ordination - Storey heights and room heights for residential buildings (1 page A4)
Fixes sizes for modular heights of storeys (floor-to-floor heights) and room heights (floor-to-ceiling heights) for residential buildings. Recommended controlling dimensions for storey heights are: 26M (2600 mm); 27M (2700 mm); 28M (2800 mm); and, 30M (3000 mm). Recommended controlling dimensions for room heights are: 23M (2300 mm); 24M (2400 mm); 25M (2500 mm); 26M (2600 mm); 27M (2700 mm); and, 28M (2800 mm). Additional controlling dimensions for cellars, basements, and corridors are 20M (2000 mm); 21M (2100 mm); and 22M (2200 mm).

ISO/R 1790-1970 [ISO Recommendation] Modular co-ordination - Reference lines of horizontal controlling co-ordinating dimensions (1 page A4)
Fixes the position of reference lines of horizontal controlling co-ordinating dimensions between boundary planes and axial planes.

ISO 1971-1973 Modular co-ordination - Vocabulary [Bilingual edition] (4 pages A4)
Gives the definitions of terms necessary for the planning, design and construction of buildings in accordance with the principles of modular coordination, and for the design and manufacture of components for use in such buildings. See also Appendixes 4.1 to 4.3.

ISO 2776-1974 Modular co-ordination - Co-ordinating sizes for doorsets: External and internal (1 page A4)
Specifies the co-ordinating sizes for doorsets of all materials to be used in buildings, and to fill co-ordinating spaces in dimensionally co-ordinated buildings of all types. The coordinating sizes for external and internal doorsets are:
Width (external): n x 3M from 9M to 24M
Width (internal): n x 1M from 7M to 10M; n x 3M from 12M to 21M
Height (both): n x 3M from 21M to 30M;
where n x stands for "increments of."

Part 1 INTERNATIONAL STANDARDS (ISO) - (Continued)

ISO 2777-1974 Modular co-ordination - Co-ordinating sizes for rigid flat sheet boards used in building (1 page)
Specifies co-ordinating sizes for the length and width dimensions of rigid flat sheet boards used in buildings of all types.
Length: n x 3M (300 mm) from 18M (1800 mm) to 30M (3000 mm)
Width: 6M (600 mm); 9M (900 mm); 12M (1200 mm).

ISO 2848-1974 Modular co-ordination - Principles and rules (4 pages A4)
Specifies the aims of modular co-ordination and states the general principles and rules to be applied in determining the sizes of building components and equipment, and of assemblies and buildings themselves.

ISO 3055-1974 Kitchen Equipment - Co-ordinating sizes (2 pages A4)
Defines co-ordinating sizes of spaces for components of kitchen equipment (for example, storage units, work tops, sink units and appliances) in dwellings. Includes minimum dimensions and preferred heights or length in some cases.

ISO 3571/1-1977 Passenger lift installations - Part 1: Residential buildings - Definitions, functional dimensions and modular co-ordination dimensions (7 pages A4)
Fixes the necessary dimensions to permit the accommodation of passenger lift installations (elevators) in residential buildings, as well as the resultant modular co-ordination dimensions. Also fixes the dimensions of lift cars appropriate for these buildings. The standard is the first in a series which may eventually be consolidated into one document. It adopts the principle of modular co-ordination between boundary planes rather than axial planes. This document will be partly replaced with the issue of ISO 4190/1, "Passenger lift installations - Lifts of classes I, II, and III."

ISO 3881-1977 Building construction - Modular co-ordination - Stairs and stair openings - co-ordinating dimensions (2 pages A4)
Gives general principles for coordinating dimensions of stairs and stair openings in building construction of buildings of all types. Horizontal distances between co-ordinating planes shall be multiples of 3M (300 mm) as a first preference, and multiples of 1M (100 mm) as a second preference. The co-ordinating planes for location of floors shall be related to the finished floor levels.

ISO 5731-1978 Kitchen equipment - Limit of size (2 pages A4)
Specifies the limit (minimum or maximum) of size to ensure co-ordination and interchangeability of the components of kitchen equipment in ISO 3055-1974. Covers only certain sizes having special importance for the assembly.

ISO 5732-1978 Kitchen equipment - Sizes of openings for built-in appliances (3 pages A4)
Specifies the sizes of openings for refrigerators, freezers, ovens, dishwashing machines and other household appliances, with the exception of cookers or built-in kitchen cupboards, already referred to in ISO 3055-1974. Also specifies the sizes of openings for drop-in cooking tables (drop-in hobs) in worktops.

ISO Standards on Joints, Tolerances, and Measurement:

ISO 1803-1973 Tolerances for building - Vocabulary [Bilingual edition] (8 pages A4)
See also Appendix 4.4.

ISO 2444-1974 Joints in building - Vocabulary [Bilingual edition] (8 pages A4)

ISO 3443/1-1979 Tolerances for building - Part 1: Basic principles for evaluation and specification (2 pages A4)
Describes the nature of dimensional variability in building, and defines the factors to be taken into account in the evaluation, specification and verification of tolerances for the manufacture of building components and for site work. Applies to components and buildings generally, including those designed in accordance with the principles of modular co-ordination.

ISO 3443/2-1979 Tolerances for building - Part 2: Statistical basis for predicting fit between components having a normal distribution of sizes (5 pages A4)
Describes the fundamental characteristics of dimensional variability in building, and sets out the need to relate dimensional variability to the limits imposed on joint widths for satisfactory performance.

ISO 4463-1979 Measurement methods for building - Setting out and measurement - Permissible measuring deviations

Other ISO Standards Which Mention Modular Co-ordination:

ISO 1804-1972 Doors - Terminology [Bilingual edition] (8 pages A4)
Note: This subject was transferred from TC 59 to TC 162, Doors and windows.

ISO 3880/1-1977 Building construction - Stairs - Vocabulary - Part 1 [Bilingual edition] (4 pages A4)

Part 1 INTERNATIONAL STANDARDS (ISO) - (Continued)

ISO Draft Proposals [DP] and Draft International Standards [DIS]

A number of draft proposals and draft International Standards dealing with the application of modular coordination, tolerances and joints in building are listed in ISO Technical Programme 1980, published January 1980. Relevant documents are listed below, giving their reference number and the expected target date for publication in parentheses.

Draft International Standards [DIS] and Draft Proposals [DP] dealing with modular coordination:

DIS 2786.3 Modular co-ordination - Internal single-leaf non-rebated wood door sets - Principal dimensions [TC 162] (September 1980)

DIS 3414 Modular co-ordination - Co-ordinating sizes for windows [TC 59] (No target date)

DIS 3445 Modular co-ordination - Preferred sizes for horizontal controlling dimensions [TC 59] (No target date)

DIS 3446 Modular co-ordination - Preferred sizes for vertical controlling dimensions [TC 59] (No target date)

DIS 3990 Modular co-ordination - Sizes for co-ordinating lengths and widths of openings in the horizontal plane [TC 59]

DIS 3991 Modular co-ordination - Sizes for co-ordinating heights of openings in the vertical plane [TC 59] (No target date)

DIS 4190/1 Passenger lift installations - Lifts of classes I, II, and III (May 1980) -- *Transferred from TC 59 to TC 178.*

DP 6268/1 Sanitary appliances - Basic spaces and utilization areas - Part 1: Housing [TC 59] (No target date)

DP 6339/1 Building construction - Stairs - Part 1: Sizes for stairs in buildings [TC 59] (No target date)

DIS 6510 Building construction - Modular coordination - Reference planes for horizontal controlling dimensions [TC 59] (August 1980) - *Revision of ISO R1790-1970.*

DIS 6511 Building construction - Modular coordination - Reference planes for vertical controlling dimensions [TC 59] (August 1980)

DIS 6512 Building construction - Modular coordination - Storey heights and other sizes for vertical coordinating dimensions [TC 59] (August 1980)

DIS 6513 Building construction - Modular coordination - Series of preferred multimodular sizes for horizontal dimensions [TC 59] (August 1980)

DIS 6514 Building construction - Modular coordination - Infra-modular increments [TC 59] (August 1980)

DIS 6515 Building construction - Dimensional coordination - Small basic sizes [TC 59] (August 1980)

Draft International Standards [DIS] and Draft Proposals [DP] dealing with tolerances and measurement in building:

DP 1803 Revision of ISO 1803-1973: Tolerances for building - Vocabulary [TC 59] (February 1981)

DP 3443/4 Tolerances for building - Part IV: Series of values to be used for specification of tolerances [TC 59] (June 1980)

DIS 4464 Tolerances for building - Identification of tolerances for specification [TC 59] (No target date)

DP 6284 Building and civil engineering drawings - Indication of tolerances [TC 59] (September 1980)

DIS 7077 Measuring methods for building - General principles and procedures for dimensional control measurement [TC 59] (July 1982)

DIS 7078 Building construction - Measurement - Setting out and surveying - Vocabulary [TC 59] (No target date)

Part 2.1 PAN AMERICAN STANDARDS -- COPANT

Comisión Panamericana de Normas Técnicas [COPANT]
(Pan American Standards Commission)
General Secretariat
Lima 629
Codigo 1073 - Buenos Aires
República Argentina

Member Nations and Standards Organizations represented:

Argentina [IRAM]; Bolivia [DGNT]; Brazil [ABNT]; Chile [INN]; Colombia [ICONTEC]; Ecuador [LNEN]; ICAITI (Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua); Mexico [DGN]; Paraguay [INTN]; Peru [ITINTEC]; Uruguay [UNIT]; and, Trinidad & Tobago [TTBS].

Technical Committee: COPANT C3:11, Coordinación Modular
Secretariat: IRAM (Argentina)

Information Sources: Reply from General Secretary, COPANT;
Reply from Technical Secretariat of COPANT C3:11;
Catalogue of Copant Pan American Standards and Recommendations (English), July 1977;
NBS Collection of National/International Standards.

Pan American Standards [Norma Panamericana] are issued in Spanish.

Pan American Standards on Modular Coordination in Building:

Recomendación COPANT (up to 1971)

R 121 - 1968 Coordinación modular de la construcción: Bases, definiciones y condiciones generales (8 pages A4)
[Modular coordination in building: Bases, definitions and general conditions]

Norma Panamericana COPANT (from 1972)

369 - 1972 Coordinación modular de la construcción: Serie modular normal de medidas (3 pages A4)
[Modular coordination in building: Basic sizes]

370 - 1972 Coordinación modular de la construcción: Bloques modulares huecos de hormigón (concreto) (3 pages A4)
[Modular coordination in building: Modular hollow concrete blocks]

371 - 1972 Coordinación modular de la construcción: Albañilería modular (5 pages A4)
[Modular coordination in building: Modular masonry]

372 - 1972 Coordinación modular de la construcción: Módulos de proyecto (2 pages A4)
[Modular coordination in building: Design modules]

Norma Panamericana COPANT

373 - 1972 Coordinación modular de la construcción: Vanos modulares y sus cerramientos (4 pages A4)
[Modular coordination in building: Modular openings and closures]

374 - 1972 Coordinación modular de la construcción: Posición de los componentes de la construcción con respecto a la cuadrícula modular de referencia (6 pages A4)
[Modular coordination in building: Position of building components in relation to the modular reference grid]

Draft Proposals for COPANT Standards approved by Committee 3:11 at the meeting in Lima, February 1977:

Draft Proposal 1A COPANT 3:11-008	Floor to floor and room modular heights
Draft Proposal 1A COPANT 3:11-009	Modular sanitary rooms
Draft Proposal 1A COPANT 3:11-010	Mezzanine floor modular heights
Draft Proposal 1A COPANT 3:11-011	Modular vertical partitions
Draft Proposal 1A COPANT 3:11-012	Stairway cases (modular)
Draft Proposal 1A COPANT 3:11-013	Modular components for ceramic and concrete forgings

Part 2.2 CENTRAL AMERICAN STANDARDS -- ICAITI

Instituto Centroamericano de Investigación y Tecnología Industrial
[ICAITI]
(Central American Research Institute for Industry)
Avenida La Reforma 4-47
Zona 10
Guatemala C.A.

Member Nations and Standards Organizations represented:

Costa Rica; El Salvador; Guatemala; Honduras; and, Nicaragua.

Technical Committee: ICAITI - 41
Secretariat: ICAITI

Information Sources: Reply from Head, Standards Division, ICAITI;
NBS Collection of National/International Standards.

Central American Standards [Norma Centroamericana] are issued in Spanish.

Standards Dealing With Modular Coordination in Building:

ICAITI 41 012 [1967] Coordinación modular de la construcción: Bases, definiciones y condiciones generales (4 pages A4)
[Modular coordination in building: Bases, definitions and general conditions]

ICAITI 41 013 [1967] Coordinación modular de la construcción: Selección de múltiplos preferidos (6 pages A4)
[Modular coordination in building: Selection of preferred multiples]

Part 2.3 MULTI-NATIONAL STANDARDS -- CMEA

Council of Mutual Economic Aid [CMEA]
Scretariat CMEA
Prospekt Kalinin 56
Moskva
USSR

Member Nations of the Council of Mutual Economic Aid:

Bulgaria, Cuba, Czechoslowakia, German Democratic Republic, Hungary, Mongolia, Poland, Romania, U.S.S.R.

Technical Committee: Permanent Commission on Building

Information Source: Bauakademie der Deutschen Demokratischen Republik
Institut für Projektierung und Standardisierung
1125 Berlin
Plauener Straße

ST - RGW 1001 - 78 Maßordnung im Bauwesen - Grundbestimmungen
[Modular coordination in building; Principles]

ST - RGW 1404 - 78 Gebäude von Industriebetrieben - Geometrische Parameter
[Industrial buildings; Dimensions]

ST - RGW 1405 - 78 Wohn- und Gesellschaftsbauten - Geometrische Parameter
[Residential and community buildings; Dimensions]

ST - RGW 1408 - 78 Landwirtschaftgebäude - Geometrische Parameter
[Agricultural buildings; Dimensions]

Part 3.1 AUSTRALIA

Standards Association of Australia [SAA]
Standards House
80 Arthur Street
[P.O. Box 458]
North Sydney N.S.W. 2060
Australia

Technical Committees: BD/51 - Dimensional Coordination
Secretariat: SAA
BD/-/3 - Preferred Sizes of Building Components
Secretariat: SAA
BD/53 - Spaces for Domestic Equipment
Secretariat: SAA

Information Sources: Reply from Group Manager, Building and Civil Engineering, SAA; Australian Standards 1979; and, NBS Collection of National/International Standards

The following Australian Standards [AS] deal with dimensional coordination in building:

AS 1224 - 1972 Preferred sizes of building components (12 pages A4)
Gives preferred coordinating dimensions for certain building components and assemblies which are dimensionally critical; including masonry and precast units, sheet materials, ceramic (or similar) tiles, doorsets, windows, roofing and cladding, roof lights, ceiling panels, flooring and paving slabs. Recommendations for sizes of masonry panels, spacing of timber studs, and spacing of ceiling suspension rods are also given. Dimensions are consistent with recommendations for coordinated preferred dimensions in building given in AS 1234, in which the basic module of 100 mm is used.

AS 1233 - 1972* Glossary of terms for dimensional coordination, *and*
AS 1234 - 1972* Recommendations for coordinated preferred dimensions in building

*(Bound together under the title "Preferred dimensions in building [Metric units]") (16 pages A4)
The combined standards deal with dimensional coordination in the building industry, using metric units as the basis. AS 1233 gives definitions and illustrates many of the terms. AS 1234 identifies the key reference planes in a building and gives various series of practical coordinated dimensions between them, based on the international building module of 100 mm and certain selected multiples. Although predating ISO standards, AS 1234 is in general agreement with international recommendations. An appendix with discursive information explains the basic principles and how these are applied in practice.

Part 3.1 AUSTRALIA - (Continued)

AS 1351 Part 1 - 1974 — Spaces in dwellings [Metric units]
Part 1 - Kitchens (4 pages A4)
Specifies the preferred coordinating dimensions for spaces for kitchen fitments, work surfaces and appliances in dwellings when designed in accordance with the principles of coordinated preferred dimensions in building.

Selected Australian Standards showing dimensionally coordinated products in general conformance with AS 1224-1972, "Preferred sizes of building components:"

AS 1346 - 1973 — Concrete building bricks [Metric units] (21 pages A5)

AS 1500 - 1974 — Concrete building blocks (23 pages A5)

AS 1684 and Supplements — SAA Light timber framing code [Metric units]
(52 pages A4)
and 22 Supplements (A4 size) with light timber framing span tables for various groups and stress grades
Spacings of members are in preferred metric dimensions.

AS 1889 - 1976 — Vinyl asbestos floor tiles (20 pages A4)

AS 1908 and 1909 - 1976 — Specification for timber doorsets [1908] and Code of practice for installation of timber doorsets [1909]
(44 pages A5)

AS 2055 - 1977 — Flexible PVC floor-covering (20 pages A5)

Other SAA information:

SAA MH1 - 1972 — Metric handbook: Metric conversion in building and construction (96 pages A4)
Section 11: Coordination of dimensions in building
Section 12: Metric building materials

SAA MH2 - 1975 — Metric handbook: Metric data for building designers
(140 pages A4)
Section 3: Drawing practice
Section 5: Internal spaces and circulation
Section 6: Ramps, slopes and stairs
Section 7: External circulation
Section 8: Design guidance (on dimensional coordination)

Part 3.2 CANADA

There are a number of recognized standards writing organizations in Canada. The Standards Council of Canada was formed as a national co-ordinating body with criteria and procedures for the approval of standards issued by various organizations as National Standards of Canada. National Standards of Canada are identified by the prefix CAN.

Standards Council of Canada
350 Sparks Street
Ottawa, Ontario
Canada K1R 7S8

Standards relating to building are issued by the following organizations:

Canadian Standards Association [CSA]
178 Rexdale Boulevard
Rexdale, Ontario
Canada M9W 1R3

CSA Standards approved as National Standards of Canada have the prefix CAN3 before the alpha-numerical CSA identification code. Standards issued in metric (SI) units are identified by the suffix M.

Technical Committee: CSA Steering Committee on Building Materials and Products

Canadian Government Specifications Board [CGSB]
Supply and Services Canada
Hull, Québec
Canada K1A 0S5

CGSB Standards approved as National Standards of Canada have the prefix CAN2 before the CGSB standards number. Standards issued in metric (SI) units are identified by the suffix M.

Information Sources: CSA Standards Catalogue 1980;
Catalogue of CGSB Standards 1979;
NBS Collection of National/International Standards.

Canadian National Standards dealing with dimensional coordination in building:

CAN3-A31.M-75 Series of standards for metric dimensional co-ordination in building (5 parts - 37 pages 215 mm x 280 mm)
[Also available in the French language]
Will supersede A31-1959 (Revised 1971) when metric conversion in Canada is completed.

Part 1: CAN3-A31.1M-75 Glossary of terms for metric dimensional co-ordination in building (Illustrated)
Defines the terms to be used in metric dimensional co-ordination in building.

CAN3-A31.M-75 Series of standards for metric dimensional co-ordination in building

Part 2: CAN3-A31.2M-75 Principles and rules for dimensional co-ordination in buildings

Specifies the aim of modular co-ordination and states the general principles and rules to be applied in the determination of the dimensions of all building components and their assembly and to be applied to buildings as a whole.

Part 3: CAN3-A31.3M-75 Controlling dimensions in building

Gives recommendations for co-ordinating controlling dimensions in building, for spacing of columns, positioning of walls, floors and ceilings and for the heights of door and window heads and sills. Controlling dimensions are key dimensions which must be established in relation to functional and user requirements. These dimensions are taken between planes in the controlling reference system.

Part 4: CAN3-A31.4M-75 Recommended metric co-ordinating dimensions for the sizing of building components

Gives recommendations for preferred sizes to be applied to key building materials and components. Dimensions shown are co-ordinating dimensions or those of the theoretical space occupied by the component, including such allowances as required for tolerances and jointing. Appendixes show: Examples of the use of preferred dimensions; examples of the sizing of modular components; and, the combination of sizes. (The Appendixes are not a mandatory part of the standard.)

Part 5: CAN3-A31.5M-75 A guide to the establishment of tolerances for metric dimensional co-ordination in building

Covers definitions of terms used in the study and application of tolerances to metric dimensional co-ordination in building.

Other Canadian standards showing dimensionally co-ordinated product sizes in general conformance with CAN3-A31.M-75:

Issued by CGSB:

CAN2-75.1-M 77 Tile, Ceramic (9 pages 215 x 280 mm)

Table 2 shows nominal dimensions for metric modular tiles.

CAN2-92.1-M 77 Acoustical units; Prefabricated (9 pages 215 x 280 mm)

Including lightweight tile, board, panel or linear type prefabricated units providing acoustical treatment and interior finish. Includes metric modular sizes.

CAN2-34.16-M 77 Sheets; Asbestos cement--Flat; Fully Compressed

Standard commercial sizes are modular metric.

Issued by Canadian Standards Association [CSA]:

A165-M 1977 CSA Series of standards on concrete masonry units [Metric] (66 pages 152 x 229 mm)

Part 1: Concrete masonry units

A165.1-M 1977 *Table 2 shows dimensions for standard units conforming to CAN3-A31.M-75.*

Part 2: Concrete brick masonry units

A165.2-M 1977 *Table 2 shows dimensions for standard units conforming to CAN3-A31.M-75.*

0132.1-M 1977 Wood windows (30 pages 152 x 229 mm)
Appendix A shows preferred modular window sizes (Not a mandatory part of the standard).

0151-M 1978 Canadian softwood plywood (38 pages 152 x 229 mm)
Article 3.6 includes metric modular panel sizes.

Drawing Practice:

CAN3-B78.3-M77 Building drawings (48 pages 215 x 280 mm)
Applies to the preparation and reproduction of (metric) building drawings. Includes recommendations for a general classification of types of drawings and establishes a general context for detailed recommendations on drawing-office practice. Contains a set of drawings for a hypothetical building to illustrate procedures and show symbols used in building drawings. Utilizes metric preferred dimensions in plans and details. References CAN3-A31.M and refers to work in ISO/TC10/SC8 on a proposed ISO standard on building drawings.

Part 3.3 CYPRUS

Cyprus Organization for Standards and Control of Quality [CYS]
Ministry of Commerce and Industry
Nicosia
Cyprus

Technical Committee: CYS/TC 20; Secretariat: CYS

Information Sources: Reply from Cyprus Organization for Standards and Control of Quality;
NBS Collection of National/International Standards

The following Cyprus Standards [CYS] have been issued:

CYS 51 : 1978 Modular co-ordination--Basic module (5 pages A4)
Fixes the definition and symbol of the module used as a basis for the standardized modular co-ordination of buildings, of their constituent parts and of the components used in their construction; and fixes the value of the basic module.
Corresponds to ISO 1006-1973, "Modular co-ordination--Basic module."

CYS 52 : 1978 Modular co-ordination--Principles and rules (6 pages A4)
Specifies the aims of modular co-ordination and states the general principles and rules to be applied in determining the sizes of building components and equipment, and of assemblies and buildings themselves.
Identical to ISO 2848-1974, "Modular co-ordination--Principles and rules," except that the words "International standard" are to be interpreted as "Cyprus standard."

Part 3.4 INDIA

Indian Standards Institution [ISI]
Manak Bhavan
9 Bahadur Shah Zafar Marg
New Delhi 110002
India

Technical Committee: Modular Co-ordination Sectional Committee, BDC 10
Civil Engineering Division, ISI
Secretariat: Indian Standards Institution

Information Sources: Reply from Joint Director (Designs), Government of India, National Buildings Organization & U.N. Regional Housing Centre;
Sectional List of Indian Standards - Civil Engineering;
NBS Collection of National/International Standards.

Indian Standards Dealing With Modular Co-ordination in Building:

IS:1233 - 1969 [Issued in April 1970] Recommendations for Modular Co-ordination of Dimensions in the Building Industry [First Revision] (12 pages A5)
Defines the basic principles to be adopted for dimensional co-ordination in the building industry, and deals with its application in building design and manufacture of building materials and components. Lists objectives of modular co-ordination and adopts a basic module of 10 cm (100 mm).

IS:4993 - 1973 [Issued in March 1974] Glossary of Terms Relating to Modular Co-ordination [First Revision] (10 pages A5)
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. Revised to align closely with ISO 1791 and 1803.

IS:6408 - 1971 [Issued in May 1972] Recommendations for Modular Co-ordination - Application of Tolerances in Building Industry (14 pages A5)
Lays down the basis for uniform application of tolerances in the building industry.

IS:6772 - 1972 [Issued in March 1973] Recommendations for Dimensional Co-ordination for Industrialized Buildings - Preferred Increments (6 pages A5)
Gives recommendations for preferred increments for building components and spaces, and the method of application of the preferred increments to vertical and horizontal dimensions. The recommendations are specifically related to the dimensional requirements of housing. Covers the provisions of IS:2375 - 1963, which has been withdrawn.

IS:6820 - 1972 [Issued in June 1973] Recommendations for Modular Co-ordination Rules for Modular Planning (14 pages A5)
Lays down basic principles for modular layout of buildings through the use of modular and multimodular grids and fixes the interrelationship of building dimensions in planning and execution of building to aid fabrication of building components.

IS:7564 Recommendations for Co-ordination of Dimensions in Buildings - Arrangement of Building Components and Assemblies

Part 1 - 1974 [Issued in July 1975] Functional Group 1 - Structure (12 pages A5)
Lays down recommendations for co-ordinating dimensions of building components and assemblies in functional group 1 --structure--which comprises the following elements of construction: foundation, floors, roofs, floor and roof beams, roof trusses and arches, load bearing walls, staircases, ramps, and raker beams.

Part 2 - 1974 [Issued in June 1975] Functional Group 2 - External Envelope (10 pages A5)
Lays down recommendations for co-ordinating dimensions of building components and assemblies in functional group 2 --external envelope--which comprises the following elements of construction: walls, wall openings, roofs, and roof openings.

Part 3 - 1974 [Issued in August 1975] Functional Group 3 - Internal Subdivision (8 pages A5)
Lays down recommendations for co-ordinating dimensions of building components and assemblies in functional group 3 --internal subdivision--which comprises the following elements of construction: partitions, floors, ceilings, and staircases.

Part 4 - 1975 [Issued in April 1976] Functional Group 4 - Services and Drainage (14 pages A5)
Lays down recommendations for co-ordinating dimensions of building components and assemblies in functional group 4 --services and drainage--which comprises the following: heating, water, fire fighting, ventilations and air distribution, electrical, drainage, refuse collection and disposal, transportation, and miscellaneous equipment and services.

Part 5 - 1974 [Issued in July 1975] Functional Group 5 - Fixtures, Furniture and Equipment
Lays down recommendations for co-ordinating dimensions of building components for functional group 5--fixtures, furniture, and equipment--which comprises the following functional activities: domestic living, commercial and community servicing, teaching, learning and research, production, farming, manufacture, distribution-retailing, and communication. (20 pages A5)
Assistance in the development of IS:7564 was derived from PD 6432:Parts 1 and 2: 1969, published by the British Standards Institution.

IS:7921 - 1975 [Issued in May 1976] Recommendation for Modular Co-ordination - Multimodules and Preferred Sizes for Horizontal Co-ordinating and Controlling Dimensions (8 pages A5)

Specifies values of multimodules for horizontal co-ordinating dimensions and ranges of preferred sizes for horizontal controlling dimensions, that is, widths of building components like doors, windows, built-in furniture and fixtures, widths and spacings of controlling zones for columns, and load-bearing walls. Applies to the construction of buildings of all types.

Covers the provisions of IS:7184 - 1973, which has been withdrawn.

IS:7922 - 1975 [Issued in May 1976] Recommendation for Modular Co-ordination - Multimodules and Preferred Sizes for Vertical Co-ordinating and Controlling Dimensions (8 pages A5)

Specifies values of multimodules for vertical co-ordinating dimensions and ranges of preferred sizes for vertical controlling dimensions, that is, heights of building components like doors, windows, built-in furniture and fixtures, heights of controlling zones, storey heights and room heights. Applies to the construction of buildings of all types, but the application of certain sizes is limited to particular types of buildings.

Covers the provisions of IS:2718 - 1964, which has been withdrawn.

Part 3.5 Republic of IRELAND (EIRE)

Institute for Industrial Research and Standards [IIRS]
Ballymun Road
Dublin 9
Ireland

Technical Development: The National Institute for Physical Planning and Construction Research (An Foras Forbatha)
St. Martin's House
Waterloo Road
Dublin 4
Ireland

Information Sources: Reply from Standards Division, Institute for Industrial Research and Standards; Reply from Construction Division, Institute for Physical Planning and Construction Research; Irish Standards Handbook 1977; and,
NBS Collection of National/International Standards

Irish standards are published in English; some standards are available in the Irish language. The following Irish Standards and Provisional Standards deal with dimensionally coordinated products:

Irish Standard Specifications:

I.S. 20 - 1974 Concrete building blocks (48 pages A5)
Includes Appendix (For information only): Notes to Users- Concrete blocks in the context of modular co-ordination.

I.S. 91 - 1974 Clay bricks and blocks (72 pages A5)
Includes Appendix (For information only): Notes to Users- Bricks and blocks in the context of modular co-ordination.

I.S. 189 - 1974 Concrete building bricks (36 pages A5)
Includes Appendix (For information only): Notes to Users- Bricks in the context of modular co-ordination.

I.S. 190 - 1974 Calcium silicate building blocks (36 pages A5)
Includes Appendix (For information only): Notes to Users- Blocks in the context of modular co-ordination.

I.S. 41 - 1975 Gypsum plasterboard (12 pages A5)
Includes modular sizes in Table 1.

I.S. 63 Part 1 - 1976 Wood windows and wood surrounds for metal windows-- Dimensions (20 pages A5)
Shows metric co-ordinating sizes in Table 1.

I.S. 132 Part 1 - 1975 Stainless steel sinks for domestic purposes (12 pages A5)
Includes metric-modular sizes in Table 3 and refers to ISO 3055.

I.S. 196 Part 1 - 1977 Wood doorsets--Dimensions (32 pages A5)
Shows metric co-ordinating sizes for internal and external doorsets in Table 1.

I.S. 197 Part 1 - 1977 Metal windows--Dimensions (20 pages A5)
Shows metric co-ordinating sizes in Table 1.

I.S. 198 Part 1 - 1977 Metal doorsets--Dimensions (20 pages A5)
Shows metric co-ordinating sizes in Table 1.

Provisional Standards:

I.S. 193P: 1978 Timber trussed rafters for roofs (22 pages A4)
Includes Appendix: Modularly co-ordinated roof trusses.

I.S. 210P: 1979 Modular rigid flat sheet materials--Dimensions (2 pages A4)
Covers dimensions of modular rigid flat sheet materials for use in dimensionally co-ordinated buildings. Based on Modular Components 3, 'Rigid flat sheet materials', published by An Foras Forbatha. References ISO 2777.

I.S. 211P:1979 Modular sanitary fittings--Dimensions (2 pages A4)
Covers the co-ordinating sizes for sanitary fittings; i.e. baths, shower trays, shower cubicles and stainless steel sinks. Based on Modular Components 4, 'Sanitary fittings,' published by An Foras Forbatha.

I.S. 212P: 1979 Modular kitchen fitments--Dimensions (2 pages A4)
Covers the co-ordinating sizes of kitchen fitments. Based on Modular Components 8, 'Kitchen fitments,' published by An Foras Forbatha, and ISO 3055, 'Kitchen equipment--Co-ordinating sizes.'

I.S. 213P: 1979 Modular rooflights--Dimensions (2 pages A4)
Covers the co-ordinating sizes for rooflights complete with kerbs, or rooflights suitable for fixing to kerbs formed in-situ with the roof construction. Based on Modular Components 11, 'Rooflights,' published by An Foras Forbatha.

Note: The principal reference on modular co-ordination referred to in explanatory material of Irish Standards is "Modular Guidelines," (105 pages A4), issued by An Foras Forbatha (The National Institute of Physical Planning and Construction Research) in October 1972. An Foras Forbatha was given specific responsibility for metrication and modular co-ordination by the Irish Government, and has prepared a range of reference publications on Modular Components, Modular Design Aids, and Modular Frameworks for Buildings.

Part 3.6 JAMAICA

Jamaican Bureau of Standards [JBS]
6 Winchester Road
P.O. Box 113
Kingston 10
Jamaica

Technical Committee: Building & Associated Materials
Secretariat: Jamaican Bureau of Standards

Information Sources: Reply from The Jamaican Bureau of Standards
NBS Collection of National/International Standards

The following Jamaican Standards contain references to metric preferred [modular] dimensions:

JS 35:1975 Jamaican standard specification for standard hollow concrete blocks (imperial and metric sizes) (20 pages A4)
Became a compulsory standard in June 1978, and was amended in 1978 to emphasize metric units over imperial units; e.g. dimensions are shown as 100 mm (4"), 150 mm (6"), and 200 mm (8").

JS 50:1977 Jamaican standard specification for concrete and terrazzo flooring tiles (25 pages A4)

Part 3.7 MALAYSIA

Standards and Industrial Research Institute of Malaysia [SIRIM]
Lot 10810, Phase 3, Federal Highway
P.O. Box 35, Shah Alam
Selangor
Malaysia

Information Source: NBS Collection of National/International Standards

The following Malaysian Standards [MS] include preferred (modular) dimensions of building products:

MS 7.2:1971 Specification for precast concrete blocks (62 pages A5)
Includes traditional sizes expressed in metric units. Subject to review.

MS 7.6:1973 Specification for bricks and blocks of fired brick-earth clay or shale - Part 2: Metric Units

Part 3.8 NEW ZEALAND

Standards Association of New Zealand [SANZ]
Sixth Floor, World Trade Center
15-23 Sturdee Street,
Wellington 1
New Zealand

Postal Address: Private Bag, Wellington

Technical Committee: Building & Civil Engineering Sectional Committee
Secretariat: SANZ

Information Sources: Reply from Standards Association of New Zealand;
Index 1979 [of New Zealand Standards]-MP 100:1979;
NBS Collection of National/International Standards.

The following New Zealand Standards [NZS] deal with dimensional coordination and preferred dimensions:

NZS 4201P:1973 Code of practice for modular coordination in building
[Provisional New Zealand Standard] (20 pages A4)
Covers the selection of dimensions for buildings, building components, and equipment so that a general concordance is obtained between all their co-ordinating dimensions and so that components may be used together on the building site without modification. Contains sections on Interpretation (definitions), Modules, Component and Fitting Sizes, and Controlling Dimensions.

NZS 4101:1974 Recommendations for space provision for fitments, appliances, and storage in domestic kitchens [Metric]
(12 pages A4)
Gives recommendations for preferred metric dimensions in coordinated sizes of the spaces required for fitments, appliances, storage and work in domestic kitchens.

NZS 4207:1975 Preferred co-ordinating sizes for rigid flat sheet materials used in building
Based on ISO 2777-1974 (Modular co-ordination--Co-ordinating sizes for rigid flat sheet boards used in building).

NZS 5902 Building drawing practice

Part 1:1976	General and architectural (84 pages A4)
Part 2:1976	Structural--Concrete, steel and timber (50 pages A4)
Part 3:1976	Services--Mechanical and sanitary (78 pages A4)
Part 4:1976	Services--Electrical (52 pages A4)

The series is bound in a folder. The standards contain some references to dimensionally co-ordinated drawings.

Part 3.9 NIGERIA

Nigerian Standards Organization [NSO]
Federal Ministry of Industries
11 Kofo Abayomi Road
Victoria Island
Lagos

Information Source: NBS Collection of National/International Standards

The following Nigerian Standards [NIS] include preferred dimensions for building products based on multiples of 100 mm:

NIS 23:1973 Specification for flexible PVC flooring (Metric) (25 pages A5)

NIS 35:1974 Specification for PVC (vinyl) asbestos floor tiles (Metric) (14 pages A5)

NIS 74:1976 Specification for burnt clay building units

NIS 86:1977 Specification for sandcrete blocks

Part 3.10 PHILIPPINES

Philippines Bureau of Standards [PS]
TML Building
100 Quezon Avenue
Quezon City, Metro Manila
P.O. Box 3719, Manila
Republic of the Philippines

Technical Committees:
SC 1 Dimensional Coordination
Secretariat: Philippines Bureau of Standards

SC 4 Limits and Fits on Building Construction
Secretariat: Philippines Bureau of Standards

SC 5 Joints
Secretariat: Philippines Bureau of Standards

Information Sources: Reply from Director, Philippines Bureau of Standards.

Philippine Standards are issued in English. The following Philippine Standards deal with preferred dimensions and tolerances for building products:

PS 15-2 : 1979 Specification for concrete hollow blocks (First Revision) (17 pages A4)

PS 22 : 1968 Specification for glazed ceramic tiles and tile fittings (14 pages A4)

PS 147-1 : 1977 Specification for galvanized iron and/or steel sheets and coils (21 pages A4)

Part 3.11 SINGAPORE

Singapore Institute of Standards and Industrial Research [SISIR]
179, River Valley Road
Maxwell P.O. Box 2611
Singapore 6

Information Sources: Singapore Standards Yearbook 1977 and Supplement 1; NBS Collection of National/International Standards.

Singapore Standards [S.S.] are issued in English. The following standards contain preferred (modular) product sizes:

S.S. 58 - 1972 Asbestos cement flat and corrugated sheets
Includes 400 x 200 mm roofing slates.

S.S. 76M-1975 Precast concrete blocks (Metric) (17 pages A4)
Gives metric preferred (modular-coordinated) sizes.

S.S. 103M-1975 Burnt clay and shale bricks (20 pages A4)
Uses the British standard metric brick format.

S.S. 116-1975 PVC (vinyl) asbestos floor tiles (25 pages A4)

S.S. 118-1975 Steel windows and doors for domestic and similar purposes (36 pages A4)
Gives co-ordinating sizes, work sizes, tolerances and deviations for side-hung, top-hung and horizontally pivoted steel windows and doors. Includes materials and complete design range, with details, sections and fixings.

Part 3.12 SOUTH AFRICA

South African Bureau of Standards [SABS]
1 Dr Lategan Road
Groenkloof
Private Bag X191
Pretoria, 0001
Republic of South Africa

Technical Committees: Modular Rationalization in Building Program
A number of project committees under the chairmanship of the Head of the Division of Architecture and Building Co-ordination.

Information Sources: Reply from South African Bureau of Standards, Division of Architecture and Building Co-ordination; SABS Yearbook
NBS Collection of National/International Standards.

South African Standards are published in English and Afrikaans. The following standards deal with dimensional co-ordination in building and co-ordinating sizes of building products:

SABS 993 - 1972 Specification for modular co-ordination in building [Metric Units] (32 pages A4 each English and Afrikaans)
Contains definitions of the terms used in modular co-ordination and covers the dimensions of the basic module and derived modules. Provides guidance on the selection of dimensions for buildings, building components, and building equipment so that a general concordance is obtained between all their co-ordinating dimensions and so that components may be used together on the building site without modification. Appendix A provides recommendations for the use of modular co-ordination in building, including work sizes, tolerances, boundary conventions and joints for modular building components and assemblies.

SABS 1201-1978 Prefabricated concrete components (7 pages A4)
Lays down co-ordinating dimensions for prefabricated concrete components for floors, roofs, walls, beams, columns and staircases. (Project 631:5007)

SABS 1202-1978 Aluminium windows and sliding doors for glazing (Domestic range) (12 pages A4)
Lays down co-ordinating dimensions for the domestic range of aluminium windows and sliding doors, and is intended to fill co-ordinating spaces in dimensionally co-ordinated buildings. (Project 631:5008)

SABS 1203-1978 Kitchen furniture and fittings (Domestic range)
(7 pages A4 each English and Afrikaans)
Lays down co-ordinating dimensions for the domestic range of kitchen furniture and fittings, including floor and wall mounted cupboards, sink units, stoves, refrigerators, deep-freeze units, and washing machines, intended to fill co-ordinating spaces in dimensionally co-ordinated buildings. (Project 631:5010)

SABS projects leading to further standards containing co-ordinating dimensions, to be published in the near future:

Project 631:5004 Steel framed windows and steel framed doors for glazing (Domestic range)

Project 631:5005 Internal and external doorsets (Door frame and leaf)

Project 631:5006 Sanitaryware

Project 631:5009 Wooden window frames

Project 631:5011 Rigid flat sheet materials
(To be published as SABS 1204)

Project 631:5014 Ceiling panels and strips fitted on suspension systems

Project 631:5015 Glazed rooflights (Domed, circular and barrel types)

Project 631:5016 Masonry units

Project 631:5017 Steel formwork for concrete elements to achieve finished cast sizes

Project 631:5018 Non-load-bearing partitions

Project 631:5019 Glazed ceramic wall tiles and mosaic tile sheets

Project 631:5020 Flooring slabs and tiles

Project 631:5021 Roof trusses

Other publications published by the South African Bureau of Standards:

June 1970 Recommended Practice for Building Drawing
(80 pages A4)
Prepared by the Metrication Department of SABS
Recommendations cover the production of architectural and building construction drawings in metric units and include examples of drawing practice for modular co-ordination.
A Note states that it is the intention of SABS to publish at a later date a standard code of practice based on this document.

Part 3.13 SRI LANKA

Bureau of Ceylon Standards [BCS]
53, Dharmapala Mawatha
Colombo 3
Sri Lanka

Information Sources: Price List of Sri Lanka Standards, 1978; and, NBS Collection of National/International Standards

Sri Lanka (Ceylon) standards [C.S.] are issued in English.

The following standards deal with modular coordination in building:

C.S. 129: 1972 Ceylon Standard Specification for "basic module" to be used in the building industry (6 pages A5)
Covers the definition, symbol and value of the "basic module," and is based on ISO 1006.

C.S. 130: 1972 Ceylon Standard Specification for horizontal multimodules to be used in the building industry (7 pages A5)
Recommends the values of multimodules to be used in designing of the overall structure of all buildings, based on the recommendations of ISO 1040 and Danish Standard Recommendation DS/R 1075.

C.S. 131: 1972 Ceylon Standard glossary of terms used in modular co-ordination in the building industry (11 pages A5)
Contains the terms used in the building industry with special reference to modular co-ordination, making extensive use of ISO 1791 and ISO 1803.

C.S. 132: 1972 Ceylon Standard Specification for classification of building components for dimensional co-ordination
(9 pages A5)
Grades components in five functional groups and in three categories of decreasing order of priority for dimensional co-ordination. Assistance in preparation was derived from British Standards Institution PD 6432.

C.S. 365: Standard Recommendations for modular co-ordination - Application of tolerances in the building industry

Part 3.14 UNITED KINGDOM (BRITAIN)

British Standards Institution [BSI]
British Standards House
2 Park Street
London W1A 2BS
England

Technical Committees: BDB/4 Building Design Processes; Secretariat: BSI
BDB/57 Joints and Jointing in Building
Secretariat: BSI

Information Sources: Reply from British Standards Institution;
British Standards Yearbook 1980; and,
NBS Collection of National/International Standards

The following British Standards [BS], Published Documents [PD], and Drafts for Development [DD] deal with dimensional coordination (modular coordination), tolerances and joints in building:

BS 2900:1970 Recommendations for the co-ordination of dimensions in building: Glossary of terms (12 pages A4)
Defines the terms used in modular and dimensional co-ordination, and the related subject of tolerances.
*(± ISO 1791, 1803)**

BS 4011:1966 Recommendations for the co-ordination of dimensions in building: Co-ordinating sizes for building components and assemblies (8 pages A4) Amendment AMD 1775, July 1975.
Recommendations for the derivation of the basic sizes for the co-ordinating dimensions of building components and assemblies for all types of buildings and all forms of construction. Lists four preferences (300 mm; 100 mm; 50 mm - up to 300 mm; and, 25 mm - up to 300 mm) from which BSI committees should select ranges of component sizes.
*(± ISO 1006)**

BS 4330:1968 Recommendations for the co-ordination of dimensions in building: Controlling dimensions (20 pages A4)
Provides a framework of controlling dimensions for use in the design of buildings and for assistance in the derivation of basic sizes of dimensionally coordinated components, i.e. floor-to-floor and floor-to-roof heights; floor-to-ceiling heights; changes in level; horizontal spacing between load-bearing walls and columns; and, heights for door and window sills. Appendix A gives sources of information by common building types. Appendix B shows the relation of controlling lines to grids. Appendix C gives Imperial equivalents to metric sizes.
The standard includes the requirements of BS 4176:1967, Floor-to-floor heights (withdrawn).
*(± ISO 1040, 1789, 1790)**

BS 4606:1970 Recommendations for the co-ordination of dimensions in building: Co-ordinating sizes for rigid flat sheet materials used in building (12 pages A5)
Recommends a range of co-ordinating sizes for the length and width dimensions of rigid flat sheet and board materials used in building. The range is limited to those sizes that it is anticipated will be most frequently required, in alternative materials, for application in buildings designed in accordance with BS 4330.
*(± ISO 2777)**

BS 4643:1970 Glossary of terms relating to joints and jointing in building (12 pages A5)
Defines terms for jointing products, joint dimensions, and joint functions.
*(± ISO 2444-1974)**

BS 5578 Building construction - Stairs

Part 1:1978 Vocabulary (4 Pages A4)
Identical to ISO 3880/1-1977.

Part 3:1978 Modular coordination: Specification for coordinating dimensions for stairs and stair openings (4 pages A4)
States general principles for coordinating dimensions for stairs and stair openings. Identical to ISO 3881-1977.

BS 5606:1978 Code of practice for accuracy in buildings (60 pages A4)
Gives the results of a survey of building accuracy and explains how to specify permissible deviations, giving values for common items of construction. Outlines features of the building process that affect accuracy and recommends methods for design, setting out and construction to achieve acceptable results. The code is intended to be applied to building rather than civil engineering works.
Supersedes PD 6440:Parts 1 and 2.

PD 6432 Recommendations for the co-ordination of dimensions in building. Arrangement of building components and assemblies within functional groups

Part 1:1969 Functional Groups 1, 2, 3, and 4 (44 pages A4)
Lists building components and assemblies within functional groups 1 (structure), 2 (external envelope), 3 (internal subdivision), and 4 (services and drainage), with a series of gradings to indicate their relative importance for the purposes of dimensional coordination. The co-ordinating dimensions of components and assemblies are also identified, and a general grouping of the materials of construction is included to cover all components.

PD 6432 Recommendations for the co-ordination of dimensions in building. Arrangement of building components and assemblies within functional groups

Part 2:1969 Functional Group 5 (20 pages A4)
Lists components of functional group 5 (fixtures, furniture and equipment) according to their functional activity, with a series of gradings to indicate their relative importance for the purposes of dimensional coordination.

PD 6444 Part 1:1969 Recommendations for the co-ordination of dimensions in building. Basic spaces for structure, external envelope and internal subdivision (Functional Groups 1, 2, and 3) (128 pages A4)
Gives data and guidance in the selection of limited ranges of modular building components in functional groups 1, 2, and 3, by indicating the application of BS 4330 at a detailed level. The document contains three sections and six appendixes.
*(± ISO 2848)**

Part 2:1971 Recommendations for the co-ordination of dimensions in building. Co-ordinating sizes of fixtures, furniture and equipment (Functional Group 5) (48 pages A4)

Supplement No. 1 to PD 6444:Part 2:1971 Agricultural items (8 pages A4)
The documents give data and guidance in the selection of limited ranges of fixtures, furniture and equipment, by indicating the application of BS 4330 at a detailed level.
*(± ISO 2848)**

PD 6446:1970 Recommendations for the co-ordination of dimensions in building. Combinations of sizes (28 pages A4)
Provides further guidance on the selection of limited ranges of co-ordinating sizes for additive building components, by an introduction to the use of combinations of numbers, or sizes.

DD 22:1972 Recommendations for the co-ordination of dimensions in building. Tolerances and fits for building. The calculation of work sizes and joint clearances for building components (52 pages A4)
Describes the dimensional and positional deviations in building, and the way these affect components and their joints. Introduces statistically based methods of calculation for the determination of "work sizes" for components and for the assessment of joint clearances in building design. Gives recommendations for the specification of component sizes and tolerances, and includes worked examples.
The document supersedes BS 3626:1963 and PD 6445:1969.

DD 51:(1977) Guidance on dimensional co-ordination in building
(Complete document has A4 cover and 42 pages loose leaf; may also be purchased in eight separate sections indicated below:)

Section 0 Introduction (2 pages A4)

Section 1 Basis of dimensional co-ordination (4 pages A4)

Section 2 Sizes and location of components (4 pages A4)

Section 3 Detailed design for fit (8 pages A4)

Section 4 Communication (4 pages A4)

Section 5 Dimensionally co-ordinated products in British Standards (8 pages A4)

Section 6 A selected bibliography (8 pages)

Section 7 Summary (4 pages A4)

DD51 is a comprehensive and up-to-date statement on dimensional co-ordination in building, issued in a loose-leaf format to permit purchase of individual documents and to facilitate updating.
It offers guidance to designers and manufacturers on the application of the theory of dimensional co-ordination in the design of building projects and the manufacture of components, taking into account a selection of British Standards and other publications of similar standing.

*Note: Since most British Standards on dimensional co-ordination predate ISO standards, their technical content may differ somewhat even though the general objectives are similar. The relationship of British Standards to technical information in ISO standards is coded in the British Standards Yearbook as follows: BS ≠ ISO : technically equivalent; BS ± ISO : related subject matter; and, BS = ISO : identical.

Selected British Standards showing dimensionally co-ordinated products in general conformance with BS 4011:1966, Recommendations for the co-ordination of dimensions in building: Co-ordinating sizes for building components and assemblies:

BS 187:1978 Specification for calcium silicate (sandlime and flintlime) bricks (12 pages A4)

BS 690 Part 2:1971 Asbestos-cement slates and sheets
Flat sheets, semi and fully compressed (12 pages A5)

BS 990 Part 2:1972 Steel windows generally for domestic and similar buildings
Metric Units (40 pages A4)

BS 1105:1972 Woodwool slabs up to 102 mm thick (10 pages A4)

BS 1180:1972 Concrete bricks and fixing bricks (20 pages A4)

BS 1188:1974 Ceramic wash basins and pedestals (8 pages A4)

BS 1189:1972 Cast iron baths for domestic purposes (20 pages A5)

BS 1195 Part 2:1972 Kitchen fitments and equipment [Metric units] (36 pages A5)

BS 1197 Part 2:1973 Concrete flooring tiles and fittings [Metric units] (8 pages A4)

BS 1230:1970 Gypsum plasterboard (12 pages A5)

BS 1244 Part 2:1972 Metal sinks for domestic purposes [Metric units] (8 pages A4)

BS 1281:1974 Glazed ceramic tiles and tile fittings for internal walls (24 pages A4)

BS 1286:1974 Clay tiles for flooring (28 pages A4)

BS 1390:1972 Sheet steel baths for domestic purposes (20 pages A5)

BS 2028, 1364: 1968 Precast concrete blocks--Amendment No.1 (January 1970), Metric preferred dimensions (3 pages A5)

BS 2592:1973 Thermoplastic flooring tiles (8 pages A4)

BS 3260:1969 PVC (vinyl) asbestos floor tiles (24 pages A5)

BS 3261: Part 1:1973 Unbacked flexible PVC flooring, Part 1: Homogeneous flooring (16 pages A4)

BS 3705:1972 Recommendations for provision of space for domestic kitchen equipment (12 pages A5)

BS 3921:1974 Clay bricks and blocks (32 pages A4)

BS 4022:1970 Prefabricated gypsum wallboard panels (12 pages A5)

BS 4046: Part 2:1971 Compressed straw building slabs [Metric Units] (12 pages A5)

BS 4131:1973 Terrazzo tiles (16 pages A4)

BS 4305:1972 Baths for domestic purposes made from cast acrylic sheet (36 pages A5)

BS 4680:1971 Clothes lockers

BS 4787: Part 1:1972 Internal and external wood doorsets, door leaves and frames, Part 1: Dimensional requirements (16 pages A4)

BS 4873:1972 Aluminium alloy windows (16 pages A4)

BS 4943:1973 Co-ordinating sizes for corrugated sheet materials used in building (4 pages A4)

BS 5395:1977 Code of practice for stairs (32 pages A4)

DD 34:1974 Clay bricks with modular dimensions (36 pages A4)

DD 59:1978 Calcium silicate bricks with modular dimensions (4 pages A4)
[To be used in conjunction with BS 187:1978]

Drawing Practice

BS 1192:1969 Recommendations for building drawing practice (72 pages A4)
Includes sections on reference grids, dimensions (modular dimensions), and drawn examples of dimensionally co-ordinated buildings and building details.

Part 3.15 ZAMBIA

Zambian Standards Institute [ZSI]
P.O. Box RW 259
Lusaka
Zambia

Information Source: NBS Collection of National/International Standards

Zambian Standards [ZS] are issued in English. There are no standards dealing with modular co-ordination in building; however, the following product standards contain sizes that are preferred multiples of the 100 mm module:

ZS 006:1973 Asbestos-cement - Flat sheets and slates - Semi and fully compressed (7 pages A4)
Section 2.4 contains modular co-ordinating sizes.

ZS 007:1973 Precast concrete and sand-cement blocks (15 pages A4)
Section 5, Table 1, and Figure 1 show modular dimensions.

ZS 009:1973 Asbestos cement insulating board (6 pages A4)
Section 5 contains information on modular sizes and tolerances.

Part 3.16 ZIMBABWE

Standards Association of Central Africa
17 Coventry Road
Salisbury
Zimbabwe

Information Source: 1978 Catalogue of Central African Standards;
NBS Collection of National/International Standards.

Central African Standards are issued in English. The following standards include information on preferred dimensions of building products:

CAS No. 103:1974 Glazed ceramic wall tiles and fittings (32 pages A5)
Endorsement of BS 1281:1966.

CAS No. 115:1974 Terrazzo tiles (13 pages A4)
Endorsement of BS 4131:1973.

CAS No. 119:1974 Precast concrete masonry blocks (17 pages A4)
(First Revision of CAS No. A9:1960)
Includes metric modular concrete masonry blocks.

Part 4.1 ARGENTINA

Instituto Argentino de Racionalización de Materiales [IRAM]
Chile 1192
1098 Buenos Aires
República Argentina

Technical Committee: Coordinación Modular de la Construcción
Secretariat: IRAM

Information Sources: Reply from Director General of Instituto Argentino de Racionalización de Materiales;
Catalogo de Normas IRAM 1978; and,
NBS Collection of National/International Standards

Argentine Standards [Normas IRAM] are issued in Spanish. English translations of titles have been provided by IRAM. The following Argentine Standards deal with modular coordination in building:

11 608/65 Coordinación modular de la construcción: Definiciones y condiciones generales [Revisada-Act. 10/67] (31 pages)
[Modular coordination in building: Definitions and general conditions--Revised]

11 609/65 Coordinación modular de la construcción: Medidas y tolerancias
[Act. 10/67. En folleto c/11 608]
[Modular coordination in building: Sizes and tolerances]*

11 610/65 Coordinación modular de la construcción: Elementos modulares
[Act. 10/67. En folleto c/11 608]
[Modular coordination in building: Modular elements]*

11 611/67 Coordinación modular de la construcción: Serie de medidas preferibles [En folleto c/11 608]
[Modular coordination in building: Series of preferred sizes]*

11 612/68 Bloques huecos modulares de hormigón de cemento pórtland (10 pages)
[Modular hollow concrete blocks]

11 613/70 Coordinación modular de la construcción: Albañilería modular (11 pages)
[Modular coordination in building: Modular masonry]

11 614/69 Coordinación modular de la construcción: Módulos de proyecto (5 pages)
[Modular coordination in building: Design modules]

11 615/70 Coordinación modular de la construcción: Vanos modulares y sus cerramientos (71 pages)
[Modular coordination in building: Modular openings and closures]

* *Normas IRAM 11 609, 11 610, and 11 611 are bound with 11 608/67.*

11 616/71 Coordinación modular de la construcción: Posición de los componentes de la construcción con respecto a la cuadrícula modular de referencia (11 pages)
[Modular coordination in building: Position of building components in relation to the modular reference grid]

11 617/73 Coordinación modular de la construcción: Alturas modulares de locales y de piso a piso (5 pages)
[Modular coordination in building: Room and floor-to-floor modular heights]

11 618/72 Coordinación modular de la construcción: Locales e instalaciones sanitarias modulares (8 pages)
[Modular coordination in building: Rooms and modular sanitary fittings]

11 619/73 Coordinación modular de la construcción: Alturas modulares para entreprisos (4 pages)
[Modular coordination in building: Mezzanine floor modular heights]

11 620/73 Coordinación modular de la construcción: Paneles modulares (4 pages)
[Modular coordination in building: Vertical modular partitions]

11 621/73 Coordinación modular de la construcción: Espacios modulares para escaleras (4 pages)
[Modular coordination in building: Modular stairway spaces]

11 622/72 Coordinación modular de la construcción: Componentes modulares cerámicos, de hormigón y mixtos, para forjados (13 pages)
[Modular coordination in building: Modular components for ceramic, concrete, and mixed forgings]

11 623/74 Coordinación modular de la construcción: Juntas para componentes modulares (6 pages)
[Modular coordination in building: Joints for modular components]

11 624/74 Coordinación modular de la construcción: Método de cálculo los espesores de junta y de las medidas nominales y tolerancias para componentes modulares (11 pages)
[Modular coordination in building: Method for calculating joint thickness and nominal sizes and tolerances for modular components]

Part 4.2 BRAZIL

Associação Brasileira de Normas Técnicas [ABNT]
Av. 13 de Mayo, nº 13-28º andar
Caixa Postal 1680
CEP: 20.003 - Rio de Janeiro - RJ
Brazil/Brasilia

Information Sources: Catálogo de Normas Técnicas Brasileiras 1978; and, NBS Collection of National/International Standards.

Brazilian Standards [NB = Normas Brasileiras] are issued in Portuguese.

The following standards deal with modular coordination in building [Coordenação modular da construção]:

NB - 25/69 Coordenação modular da construção - Bases, definições e condições gerais
[Modular co-ordination in building - Bases, definitions and general conditions]
This standard is the lead standard to which other standards on modular co-ordination in building refer.

NB - 302/73 Coordenação modular da construção - Posição dos componentes da construção em reloção à quadrícula modular de referência (3 pages A4)

NB - 303/73 Coordenação modular da construção - Vãos modulares e seus fechamentos (2 pages A4)

NB - 304/73 Coordenação modular da construção - Multimódulos (1 page A4)

NB - 305/73 Coordenação modular da construção - Alturas modulares de piso a piso, de compartimento e estrutural (2 pages A4)

NB - 306/73 Coordenação modular da construção - Tijolos modulares de barro cozido (2 pages A4)

NB - 307/73 Coordenação modular da construção - Blocos vazados modulares de concreto (3 pages A4)

NB - 331/73 Coordenação modular da construção - Alturas modulares de teto-piso (entre pavimentos consecutivos) (pages A4)

NB - 332/73 Coordenação modular da construção - Painéis modulares verticais (2 pages A4)

NB - 337/73 Coordenação modular da construção - Locais e instalções sanitárias modulares (2 pages A4)

Part 4.2 BRAZIL - (Continued)

NB - 338 73 Coordenação modular da construção - Componentes de cerâmica, de concreto ou de outro material, utilizado em lajes mistas na construção coordenada modularmente (2 pages A4)

NB - 339/73 Coordenação modular da construção - Espaços modulares para escadas (1 page A4)

NB - 340/73 Coordenação modular da construção - Alvenaria modular (3 pages A4)

NB - 343/73 Coordenação modular da construção - Revestimentos (1 page A4)

NB - 344/73 Coordenação modular da construção - Coberturas (1 page A4)

NB - 345/73 Coordenação modular da construção - Divisória modular vertical interna (2 pages A4)

NB - 346/73 Coordenação modular da construção - Esquadrias modulares (5 pages A4)

NB - 372/74 Forro modular horizontal de acabamento (placas, chapas, ou similares (2 pages A4)

NB - 373/74 Tacos modulares de madeira para soalhos na construcão coordenada modularmente (3 pages A4)

NB - 417/74 Coordenação modular da construção - Ajustes modulares e tolerâncias (3 pages A4)

NB - 420/74 Coordenação modular da construção - Série modular de medidas (4 pages A4)

NB - 422/74 Equipamento para complemento de habitação na construção coordenada modularmente

NB - 423/74 Coordenação modular da construção - Detalhes modulares de esquadrias

NB - 424/74 Princípios fundamentais para a elaboração dos projetos coordenados modularmente

SB - 62/74 Coordenação modular da construção - Simbologia

TB - 202/74 Coordenação modular da construção - Terminologia

Part 4.3 CHILE

Instituto Nacional de Normalización [INN]
Matias Cousino 64 - 6° piso
Casilla 995 - Correo 1
Santiago
Chile

Information Source: Catalogo De Normas Chilenas 1975

Chilean standards [Normas Chilenas] are published in Spanish. The following Chilean standards deal with modular coordination in building:

N°346 Arquitectura y construcción - Coordinación modular - Módulo normal

N°447 Carpintería - Modulación de ventanas y puertas

N°641 Arquitectura y construcción - Coordinación modular - Vanos y cerramientos

N°684 Arquitectura y construcción - Coordinación modular - Terminología y representación gráfica

N°685 Arquitectura y construcción - Coordinación modular - Serie normal de dimensiones

N°710 Arquitectura y construcción - Coordinación modular - Alturas libres interiores y espesores de entrepriso en viviendas

N°741 Arquitectura y construcción - Coordinación modular de la construcción - Albañilerías modulares

N°742 Arquitectura y construcción - Coordinación modular de la construcción - Bloques modulares huecos de hormigón

N°743 Arquitectura y construcción - Coordinación modular de la construcción - Módulos de proyectos

N°744 Arquitectura y construcción - Coordinación modular de la construcción - Posición de los componentes de la construcción con respecto a la red modular de referencia

N°771 Arquitectura y construcción - Coordinación modular - Ladrillos cerámicos - Dimensiones modulares

N°831 Coordinación modular en albañileria de ladrillos cerámicos - Terminología y requisitos

N°886 Arquitectura y construcción - Coordinación modular en elementos para entrepisos

N°887 Arquitectura y construcción - Coordinación modular - Paneles verticales - Serie de dimensiones

N°984 Arquitectura y construcción - Coordinación modular - Componentes de pavimentos - Dimensiones

Part 4.4 COLOMBIA

Instituto Colombiano de Normas Técnicas [ICONTEC]
Carrera 37 No. 52-95
P.O. Box 14237
Bogotá
Colombia

Technical Committee: C4.10 Coordinación Modular

Information Sources: Reply from Instituto Colombiano de Normas Técnicas; Catálogo de Normas Técnicas Colombianas.

Colombian Standards are issued only in Spanish. The following standards deal with modular coordination in building:

45 Coordinación modular. Bases, definiciones y condiciones generales [1a. Revisión]
[Modular coordination - Bases, definitions and general conditions]

249 (1971) Dimensiones modulares de bloques huecos de hormigón (concreto)
[Modular dimensions of hollow concrete blocks]

296 (1971) Dimensiones modulares de ladrillos cerámicos

455 Dimensiones modulares de vanos para ventanas

503 Dimensiones modulares de puertas de madera y puertas metálicas

651 Alturas modulares de piso a piso y de locales

927 Medidas modulares de paneles verticales

1 316 Dimensiones modulares y submodulares

Part 4.5 MEXICO

Dirección General de Normas [DGN]
Tuxpan No. 2
México 7, D.F.
MEXICO

Information Sources: Reply from the Director General of the Dirección General de Normas, Secretaria de Patrimonio y Fomento Industrial, Estados Unidos Mexicanos; and, NBS Collection of National/International Standards

Mexican Standards [NOM] are issued in Spanish. The following Mexican Standards deal with modular coordination in building:

NOM C-46-1973	Reglas generales de la coordinación modular de la construcción.
NOM C-47-1973	Medidas en la coordinación modular de la construcción y su clasificación.
NOM C-48-1978	Coordinación modular.--Definición de las partes que constituyen una edificación.
NOM C-78-1976	Dimensiones modulares de vanos para ventanas.
NOM C-79-1976	Dimensiones modulares de vanos para puertas interiores.
NOM C-86-1974	Medidas modulares verticales preferentes para la construcción.
NOM C-167-1977	Coordinación modular.--Espacios modulares para escaleras.
NOM C-204-1977	Coordinación modular.--Locales sanitarios modulares.
NOM C-225-1973	Principios generales de la coordinación modular de la construcción.

Part 4.6 PERU

Instituto de Investigación Tecnólogia Industrial
y de Normas Técnicas [ITINTEC]
Jr. Morelli 2a. Cda Esquina Av. De Las Artes
(Altura Cda. 21 Av. Javier Prado-Este)
San Borja - Surquillo
Lima 34
Peru

Information Sources: Reply from Director de Normalización, ITINTEC; Catalogo 79 de Normas Técnicas.

The standards referenced below are issued in Spanish; no English translations or subtitles are available.

400.003 Coordinación Modular de la Construcción. Definiciones.

400.004 Coordinación Modular de la Construcción. Serie Modular Normal de Medidas.

400.005 Coordinación Modular de la Construcción. Unidad de Mampostería Modular.

400.006 Coordinación Modular de la Construcción. Bloques Huecos de Concreto para Muros y Tabiques. Medidas Modulares.

400.007 Coordinación Modular de la Construcción. Modulo de Proyecto. (PR 27:01-004)

400.008 Coordinación Modular de la Construcción. Medidas Modulares Preferidas para Puertas y Ventanas Modulares.

400.009 Coordinación Modular de la Construcción. Ubicación de los Componentes Constructivos en relación a la Cuadrícula Modular de Referencia.

400.025 Coordinación Modular de la Construcción. Módulos para Componentes.

400.026 Coordinación Modular de la Construcción. Altura Modular Preferida de Recinto.

400.028 Coordinación Modular de la Construcción. Recintos Sanitarios Modulares.

27:01-007 Coordinación Modular de la Construcción. Espacios Modulares para Escaleras.

27:01-010 Coordinación Modular de la Construcción. Equipamiento de Cocina.

27:01-011 Coordinación Modular de la Construcción. Alturas Modulares Preferidas para Entrepisos.

27:01-012 Coordinación Modular de la Construcción. Paneles Modulares para Cerramientos Verticales.

27:01-013 Coordinación Modular de la Construcción. Medidas Modulares Preferidas para Componentes de la Construcción. Normas Generales.

Part 4.7 URUGUAY

Instituto Uruguayo de Normas Técnicas [UNIT]
Agraciada 1464 P.9, Ap.92
Montevideo
Uruguay

[*Note: Uruguay is a member nation of COPANT, but not of ISO*]

Information Source: Catalogo 1976 - Instituto Uruguayo de Normas Técnicas;

The following Uruguayan standards deal with modular coordination in building:

UNIT 365 [1974] Coordinación modular de la construcción - Bases, definiciones y condiciones generales (10 pages)
[Modular coordination in building - Bases, definitions and general conditions]
Corresponds completely to COPANT R121-1968.

UNIT 366 [1974] Coordinación modular de la construcción - Serie modular normal de medidas (5 pages)
[Modular coordination in building - Basic sizes]
Corresponds completely to COPANT 369-1972.

UNIT 367 [1974] Coordinación modular de la construcción - Módulos de proyectos (4 pages)
[Modular coordination in building - Design modules]
Corresponds completely to COPANT 372-1972.

UNIT 368 [1974] Coordinación modular de la construcción - Vanos modulares e sus cerramientos (6 pages)
[Modular coordination in building - Modular openings and closures]
Corresponds completely to COPANT 373-1972.

UNIT 369 [1974] Coordinación modular de la construcción - Posición de los componentes de la construcción con respecto a la quadrícula modular de referencia (8 pages)
[Modular coordination in building - Position of building components in relation to the modular reference grid]
Corresponds completely to COPANT 374-1972.

UNIT 428 [1975] Medidas de vanos de puertas y puertas no expuestas a la intemperie (8 pages)

Part 4.8 VENEZUELA

Comisión Venezolana de Normas Industriales [COVENIN]
Av. Boyacà (Cota Mil)
Edf. Fundación La Salle, 5°piso
Caracas 105
Venezuela

Information Source: Catalogo de Normas Venezolanas Covenin 1975]

Venzuelan Standards are issued in Spanish.

The following standard deals with modular coordination in building:

COVENIN 220 Coordinación modular - Base, definiciones y condiciones

Part 5.1 AUSTRIA (Österreich)

Österreichisches Normungsinstitut [ON]
Leopoldgasse 4
Postfach 130
A - 1021 Wien/Vienna 2
Austria

Technical Committee: 008 Modularkoordination im Bauwesen
Secretariat: Österreichisches Normungsinstitut

Information Sources: ÖNORMEN Verzeichnis 1979; Reply from the Österreichisches Normungsinstitut; and, NBS Collection of National/International Standards

Austrian Standards (ÖNORM) are issued in German with English subtitles. The following standards and draft standards deal with dimensional and modular coordination in building:

ÖNORM B 1010 [1973] Maßordnung im Bauwesen; Modulordnung; Grundlagen (11 pages A4)
[Dimensional co-ordination in building; Modular coordination; Principles]

ÖNORM B 1010 Teil 1 [Draft 1979] Maßordnung im Bauwesen; Modulordnung; Terminologie (6 pages A4)
[Part 1: Dimensional co-ordination in building; Modular co-ordination; Terminology]

ÖNORM B 1010 Teil 2 [Draft 1979] Maßordnung im Bauwesen; Modulordnung; Grundlagen (13 pages A4)
[Part 2: Dimensional co-ordination in building; Principles)

ÖNORM B 1011 Teil 1 [Draft 1979] Maßordnung im Bauwesen; Modulordnung; Planungsregeln für Materialzonen von Gebäuden (16 pages A4)
[Part 1: Dimensional co-ordination in building; Modular co-ordination; Planning rules for material zones of buildings]

ÖNORM B 1011 Teil 2 [Draft 1979] Maßordnung im Bauwesen; Modulordnung; Planungsregeln für Öffnungen und Einbauten in Wandzonen von Gebäuden (Türen und Fenster) (20 pages A4)
[Part 2: Dimensional co-ordination in building; Modular co-ordination; Planning rules for openings and fixtures in wall zones of buildings (doors and windows)]

ÖNORM B 1011 Teil 3 [Draft 1979] Maßordnung im Bauwesen; Modulordnung; Planungsregeln für Öffnungen und Einbauten in Deckenzonen von Gebäuden (Stiegen und Aufzüge) (12 pages A4)
[Part 3: Dimensional co-ordination in building; Modular co-ordination; Planning rules for openings and fixtures in floor zones of buildings (stairs and lifts)]

ÖNORM B 1011 Teil 4 [Draft 1979] Maßordnung im Bauwesen; Modulordnung; Planungsregeln für Einbauten in Freizonen von Gebäuden (5 pages A4)
[Part 4: Dimensional co-ordination in building; Modular co-ordination; Planning rules for fixtures in free zones of buildings]

ÖNORM B 1011 Teil 5 [Draft 1979] Maßordnung im Bauwesen; Technisches Zeichnen im Bauwesen; Modulordnung; Symbole (4 pages A4)
[Part 5: Dimensional co-ordination in building; Technical drawing in building; Modular co-ordination; Symbols]

ÖNORM B 1100 [1979] Maßordnung im Bauwesen; Maßtoleranzen; Grundsätze und Terminologie (8 pages A4)
[Dimensional co-ordination in building; Dimensional tolerances; Principles and terminology]

Standards referencing the basic building module and coordinating product dimensions:

ÖNORM B 1201 [1977] Kleinkipptore mit Federzugausgleich; Einbaumaße und Baurichtlinien (7 pages A4)
[Spring balanced overhead doors; Dimensions for installation and specifications for construction]

ÖNORM B 3258 [1977] Vorgefertigte Betonerzeugnisse zur Befestigung von Verkehrsflächen (7 pages A4)
[Prefabricated concrete products for the pavement of traffic areas]

ÖNORM B 3410 [1976] Gipskartonplatten; Arten, Anforderungen, Prüfungen (10 pages A4)
[Gypsum plasterboards; Types, requirements, testing]

ÖNORM B 5310 [Draft 1979] Fenster; Einbaumaße (9 pages A4)
[Windows; Dimensions for installation]

Part 5.2 BELGIUM

Institut Belge de Normalisation [IBN]
Belgish Instituut voor Normalisatie
Av. de la Brabançonne, 29
B-1040 Bruxelles
Belgium/Belgique

Information Sources: Reply from Directeur général adjoint, IBN;
NBN Catalogue 1979-1980 and Complement; and,
NBS Collection of National/International Standards.

Belgian Standards [NBN] are bilingual, issued in French and Netherlandish.

The following standards deal with dimensional coordination in building:

NBN 180-1948 Coordination des dimensions des constructions - Système du module - Directives fondamentales
Onderlinge aanpassing van de afmetingen der constructies - Modulstelsel - Grondrichtlijnen
(10 pages A4 - bilingual)
NBN 180 is currently subject to extensive review.

NBN 208-1950 Coordination des dimensions des constructions - Système du module - Baies et châssis de fenêtres
Onderlinge aanpassing van de afmetingen der constructies - Modulstelsel - Vensteropeningen en -ramen
(10 pages A4 - bilingual)

NBN 217-1949 Coordination des dimensions des constructions - Système du module - Hauteurs d'étages
Onderlinge aanpassing van de afmetingen der constructies - Modulstelsel - Verdiepingshoogten
(4 pages A4 - bilingual)

The following standards contain references to products with modular dimensions:

NBN 118-1949 Briques en terre cuite - Briques pleines pour maçonnerie ordinaire
Bakstenen - Volle bakstenen voor gewoon metselwerk
(15 pages A4 each - bilingual)
Section NBN 118.01 Dimensions et tolérances/Afmetingen en toleranties refers to NBN 180 and 181 (withdrawn).

NBN 476-1960 Briques perforées ou creuses en terre cuite
Geperforeerde of holle baksteenen
(30 pages A4 - bilingual)
References to modular dimensions in Section 4.2

NBN 538-1962 Blocs en béton pour maçonnerie ordinaire
Betonblokken voor gewoon metselwerk
(62 pages A4 - bilingual)
[Concrete blocks for ordinary masonry]
References to modular dimensions in Section 3.1

Part 5.3 DENMARK

Dansk Standardiseringsraad [DS]
[Danish Standards Association]
Aurehøjvey 12
Postbox 77
DK-2900 Hellerup
Denmark

Technical Committee: Technical Division: Building
Secretariat: Danish Standards Association

Information Sources: Reply from Danish Standards Association;
Dansk Standards Katalog 79; and
NBS Collection of National/International Standards.

Danish Standards [DS] and Recommendations [DS/R] are issued in Danish with English subtitles. English editions are published for the documents marked with an asterisk (*).

The following Danish Standards deal with modular co-ordination in building and the application of modular principles to component sizing:

DS 1000 - 1968 Etageboligbyggeri - Højdemål i normaletager
3rd Edition (4 pages A4)
[Vertical dimensions in multi-storey housing]

DS 1003 - 1973 Vinduer - Hulmål 2nd Edition (2 pages A4)
[Windows - Wall openings]

DS 1010.1 - 1975 Modulkoordinering for byggeriet - Terminologi
(7 pages A4)
[Modular co-ordination in building - Vocabulary]
Based on ISO 1791, with some terms deleted. ISO 1791 is attached in its entirety as an appendix.

DS 1010.2 - 1975 Modulkoordinering for byggeriet - Principper og regler
(5 pages A4)
[Modular co-ordination in building - Principles and rules]
The standard accords generally with ISO 2848. The main sections from ISO 1006 and parts of ISO 1040 have been added.

DS 1011.3 - 1958 Modulregler for byggeriet - Dimensionering af modulelementer (2 pages A4)
[Modular rules - Dimensioning of modular components]

DS 1012 - 1974 Målafsætning på byggepladsen 2nd Edition
(4 pages A4)
[Marking out of measurements on the site]

DS 1028.1 - 1968 Indvendige, énfløjede døre - Hulmål (4 pages A4)
[Single-leafed interior doors - Wall openings]

DS 1028.2 - 1968 Indvendige, énfløjede døre af trae - Karm- og dørplademål
(2 pages A4)
[Single-leafed interior doors of wood - Frame and door leaf dimensions]

DS 1028.3 - 1968 Indvendige, énfløjede døre af trae - Kvalitetsbestemmelser
(2 pages A4)
[Single-leafed interior doors of wood - Quality requirements]

DS/R 1038 - 1974 Dækkomponenter af beton - Bygge- og basismål
(1 page A4) 2nd Edition
[Concrete components for floor slabs - Co-ordinating and basic sizes]

DS/R 1039 - 1974 Vægkomponenter af beton til bærende indvendige vægge - Bygge- og basismål (3 pages A4) 2nd Edition
[Concrete components for interior load bearing walls - Co-ordinating and basic sizes]

DS/R 1040 - 1968 Trapperum for toløbstrapper (5 pages A4) 2nd Edition
[Staircase for double-flight stairs]

DS 1041 - 1968 Byggeblokke - Mål og forbandter (6 pages A4)
[Modular dimensions of block components]

DS 1043 - 1971 Køkkenkomponenter (2 pages A4)
[Kitchen components]

DS 1045 - 1965 Isoleringsruder - Hermetisk forseglede dobbeltruder - En-rammede vinduer (1 page A4)
[Double pane sealed units]

DS/R 1046 - 1974 Gulvoverfladers højdeplacering (2 pages A4) 2nd Edition
[Level of floors]

DS 1048 - 1966 Normalmurværk og modulprojektering (2 pages A4)
[Normal brickwork and modular co-ordination]

DS/R 1049 - 1966* Bærende vægge og dæk - Placering af komponenter
(6 pages A4 - 8 pages A4 English edition)
[Structural wall and floors - Placing of components]

DS/R 1050 - 1973 Tolerancer i byggeriet - Anvendelse af måltolerancer
(37 pages A4) 2nd Edition
[Application of dimensional tolerances in building]

DS/R 1075 - 1969 Horisontale præferencemål for byggeri (2 pages A4)
[Preferred horizontal dimensions for building]

DS/R 1076 - 1970* Vertikale præferencemål for byggeri (1 page A4)
[Preferred vertical dimensions for building]

DS/R 1077 - 1970 Halbyggeri - Horisontale præferencemål (4 pages A4)
[Industrial buildings - Preferred horizontal dimensions]

DS 1080 - 1969 Udvendige døre - Hulmål, karm- og dørpladem̊al (2 pages A4)
[Exterior doors - Sizes of openings, frames and door-leaves]

DS/R 1083 - 1974 Bærende tagkomponenter - Præferencemål, vederlag, mærkning (2 pages A4)
[Roofs - Loadbearing units - Preferred sizes, bearing, marking]

DS/R 1086 - 1972 Plejehjem - Planlægningsmodul og præferencemål (2 pages A4)
[Nursing homes - Planning module and preferred dimensions]

DS/R 1087 - 1972 Kontorbygninger - Planlægningsmodul og præferencemål (2 pages A4)
[Office buildings - Planning module and preferred dimensions]

DS/R 1100 - 1973 Tolerancer i byggeriet - Præferencetal for tolerancer (2 pages A4)
[Building tolerances - Preferred sizes]

DS/R 1101 - 1974 Pladeformede bygningskomponenter til dæk og til bærende og ikke-bærende indvendige vægge - Præferencemål (2 pages A4)
[Large panels for load bearing and non-bearing interior walls - Preferred sizes]

DS/ISO 3571/1* [April 1978] Personelevatorer til boligbyggeri - Definitioner, dimensioner og modulmål (8 pages A4)
[Passenger lift (elevator) installations - Part 1: Residential buildings - Definitions, functional dimensions and modular co-ordination dimensions]
Complete adoption of International Standard ISO 3571/1 as Danish Standard.

Part 5.4 FINLAND

Suomen Standardisoimisliitto r.y. [SFS]
(Finnish Standards Association)
P.O. Box 205
SF - 00121 Helsinki 12
Finland/Suomi

Technical Committees: TK 30, Modular Co-ordination
Secretariat: Building Information Institute
TK 46, Tolerances
Secretariat: Building Information Institute

Information Sources: Reply from Finnish Standards Association (Building Construction);
SFS-Luettelo [Catalogue] 1979 and Cumulative Supplement 9/1979; and,
NBS Collection of National/International Standards.

Finnish Standards [SFS] are issued in the Finnish language with English subtitles. English translations are available for documents marked with an asterisk (*).

The following Finnish standards deal with modular/dimensional co-ordination in building, tolerances and joints, shown in ascending numerical order:

SFS 2434 (1975)* Asunto, hygieniatila, mitoitus (7 pages A4)
[Dwelling - Hygiene spaces - Dimensioning]

SFS 2437 (1974) *Replaced by SFS 4389 (1979)*

SFS 2438 (1975) *Replaced by SFS 4389 (1979)*

SFS 2440 (1975) Moduulijärjestely, rakennusten kerroskorkeudet
(2 pages A4)
[Modular co-ordination - Storey heights]

SFS 3216 (1975) Vesikaton pääkannate, moduuliset koot (4 pages A4)
[Roofs - Loadbearing units - Modular sizes]

SFS 3303 (1978) Ikkunan ja ikkunaoven moduuliset koot (3 pages A4)
[Modular sizes for windows and window doors]

SFS 3315 (1978) Rakennusalan mittajärjestely, osamoduuli 0,5 M
(2 pages A4)
[Dimensional co-ordination in buildings - Submodule 0.5 M]

SFS 3317 (1978)* Rakennusalan mittajärjestely, saumaosuuksien mitat
(2 pages A4)
[Dimensional co-ordination of buildings - Sizes of margins]

SFS 3501 (1975) Moduulijärjestely, käsitteistö, pohjoismainen
(4 pages A4)
[Modular co-ordination - Vocabulary - Nordic]

SFS 3502 (1975) Moduulijärjestely, tavoitteet ja periaatteet (6 pages A4)
[Modular co-ordination - Principles and rules]

SFS 3696 (1976) Moduulijärjestely, lattian viitetaso (2 pages A4)
[Modular co-ordination - Reference plane for vertical dimensions]

SFS 3697 (1976) Asuinrakennuksen moduuliset kerros-, huone- ja välipohjakorkeudet (2 pages A4)
[Modular co-ordination - Storey heights, room heights, and floor heights for residential buildings]

SFS 3743 (1976) Moduulijärjestely, kantamoduuli ja kertomoduulit (2 pages A4)
[Modular co-ordination - Basic module and multimodules]

SFS 4081 (1977) Ovi, moduuliset koot (6 pages A4)
[Doorset - Modular sizes]

SFS 4283 (1978) Rakennusalan mittajärjestely, pienten ulottovuuksien perusmitat (1 page A4)
[Dimensional co-ordination of buildings - Basic sizes for small dimensions]

SFS 4373 (1979) Rakennusten mittajärjestely, pilarirunko (4 pages A4)
[Dimensional co-ordination of buildings - Column frame]

SFS 4389 (1979) Rakennusten mittajärjestely, kantavat seinät -runko (6 pages A4)
[Dimensional co-ordination of buildings - Loadbearing wall frame]
Replaces SFS 2437 (1974) and SFS 2438 (1975).

The following Finnish Standards deal with spaces, elements, or building products in modular dimensions:

SFS 2661 (1976) Kotiltalouden sähköliesi, lieden mitat (2 pages A4)
[Household electric cooker - Dimensions of cooking range]

SFS 3316 (1978) Puurristikkokannate, naulalevyillä koottu, saksiristikko (6 pages A4)
[Trussed rafter, wooden - Nail plate joints - Scissor truss]

SFS 3695 (1976) Asunto, saunan pesuhuone, mitoitus (7 pages A4)
[Dwelling - Washroom of sauna - Dimensioning]

SFS 3744 (1976) Asuintalohissit, konehuone kuilun yläpuolella, mitat (8 pages A4)
Lifts (elevators) for residential buildings - Machine room above the well - Dimensions]

SFS 3818 (1976) Sähkövedenlämmittimet. Liittymismitat (3 pages A4)
[Electric water heaters - Co-ordinating sizes]

SFS 3870 (1976) Potilashissit, konehuone kuilun yläpuolella, mitat
(7 pages A4)
[Lifts (elevators) in hospitals - Machine room above the well (shaft) -Dimensions]

SFS 4079 (1977) Muiden kuin asuinrakennusten hissit, konehuone kuilun yläpuolella, mitat (7 pages A4)
[Lifts (elevators) in other than residential buildings - Machine room above the well (shaft) - Dimensions]

SFS 4183 (1978) Puukehä, naulalevyillä koottu, matala tyyppi
(4 pages A4)
[Framed rafter with nail plate joints - Low type]

SFS 4184 (1978) Puukehä, naulalevyillä koottu, korkea tyyppi
(4 pages A4)
[Framed rafter with nail plate joints - High type]

SFS 4314 (1979) Puuristikkokannate, naulalevyillä koottu, harjaristikko
(4 pages A4)
[Trussed rafter, wooden - Nail plate joints - Pitched roof]

SFS 4374 (1979) Betonipliarin poikkileikkausmittat (3 pages A4)
[Cross dimensions for concrete columns]

SFS 4375 (1979) Betonipalkin poikkileikkausmittat (3 pages A4)
[Cross dimensions for concrete beams]

SFS 4376 (1979) Betoniseinän paksuuden perusmitat (1 page A4)
[Thickness for concrete walls]

SFS 4377 (1979) Puuristiklokannate, naulalevyillä koottu, pulpettiristikko (7 pages A4)
[Trussed rafter, wooden - Nail plate joints - Mono pitch truss]

SFS 4390 (1979) Betonilaatan perusmitat (3 pages A4)
[Basic sizes for concrete floor slabs]

Finish Standards dealing with joints, tolerances, and deviations:

SFS 2490 (1971) Mitat ja toleranssit rakennusalalla, käsitteitä
(3 pages A4)
[Measures and tolerances in building - Definitions of concepts]

SFS 3305 (1978) Rakennusmittaus, pisteiden määrittäminen ja paikalleenmittaaminen, menetelmät ja sallitut poikkeamat
(4 pages A4)
[Measurement methods for building - Setting out and measurement - Procedures and permissible measuring deviations]

SFS 3521 (1975) Rakennuksen saumat, nimistö (4 pages A4)
[Joints in building - Vocabulary]

SFS 3874 (1977) Rakennusalan toleranssit, suositeltavat lukuarvot
(1 page A4)
[Tolerances for building - Preferred sizes for tolerances]

Standards for activity spaces with dimensions given in multiples of 100 mm:

SFS 2432 (1974)* Asuminen, henkilökohtainen hygienia, toimintojen tilantarve (4 pages A4)
[Activities in dwellings - Space requirements for personal hygiene]

SFS 2433 (1974)* Asuminen, tekstiilien hoito, toimintojen tilantarve
(8 pages A4)
[Activities in dwellings - Space requirements for textile care]

SFS 2435 (1974)* Asuminen, ruokatalous, toimintojen tilantarve
(11 pages A4)
[Activities in dwellings - Space requirements for food storage and preparation]

SFS 2436 (1974)* Asuminen, ruokailu, toimintojen tilantarve (5 pages A4)
[Activities in dwellings - Space requirements for taking of meals]

SFS 3694 (1976) Asuminen, kotitalouden tekstiilien ja jalkineiden säilytys, tilantarve (4 pages A4)
[Activities in dwellings - Space requirements for textile and footwear storage]

Part 5.5 FRANCE

Association Française de Normalisation [AFNOR]
Tour Europe
Cedex 7
92080 Paris La Defense
France

Information Sources: Catalogue Normes Françaises 1980; and,
NBS Collection of National/International Standards

French standards (NF [Normes Françaises]) are issued in French; recent standards have English subtitles.

The following French standards deal with modular coordination in building:

NF P 01-001 (July 1974) Dimensions des constructions - Coordination modulaire - Module de base (3 pages A4)
[Dimensions of structures - Modular coordination - Basic module]
Replaces NF P 01-001 (September 1942), titled "Modulation;" the first national standard on modular coordination in the world.
States the definitions and values for the basic module (M = 100 mm) and has an illustration of the relationship between modular and manufacturing dimensions. References ISO 1006, and is in concurrence with it.

NF P 01-101 (July 1964) Dimensions des constructions - Dimensions de coordination des ouvrages et des éléments de construction (19 pages 210 x 270 mm)
[Dimensions of structures - Coordinating dimensions of building works and building elements]
Replaces the following French standards of May 1944: P 01-002, P 01-003, P 01-008, and P 01-009.
The standard formulates the general rules for the determination of coordinating dimensions of buildings and of the different components and elements used in their realization and completion. Illustrated.

The following French standards include modular dimensions of building products:

NF P 14-402 (April 1972) Blocs en béton pour murs et cloisons - Dimensions (pages
[Concrete blocks for walls and partitions-Dimensions]
References NF P 01-001 and NF P 01-101. Includes modular sizes of concrete blocks.

NF P 61-302 (June 1970) Carrelage - Carreaux de mosaique de marbre (15 pages A4)
[Tiling - Mosaic tiles]
Gives coordinating (modular) dimensions for mosaic tiles in Table 1, Section 3.111.

NF P 82-208 (Dec. 1977) Installation d'ascenseurs dans les batiments a usage d'habitation - Definitions, dimensions fonctionelles (10 pages A4)
[Passenger lift (elevator) installations in residential buildings - Definitions, functional dimensions]
References and conforms to ISO 3571/1 throughout, but deletes modular dimensions between axes and uses functional dimensions between wall surfaces.

Part 5.6 Federal Republic of GERMANY

Deutsches Institut für Normung e.V. [DIN]
Burggrafenstraße 4 - 10
Postfach 1107
D-1000 Berlin 30
Germany/Deutschland

Technical Committee: Normenausschuß Bauwesen [NABau]

Information Sources: Reply from Head of Building Division of DIN;
DIN Katalog 1979
NBS Collection of International/National Standards

DIN standards [Deutsche Industrie Normen] are published in German with English and French subtitles. English translations are available for documents marked with an asterisk (*).

DIN Standards for Modular Coordination in Building

DIN 18 000 Part 1 [October 1979] — Modulordnung im Bauwesen--Grundlagen (1 page A4)
[Modular co-ordination in building; principles]
The determination of the standard are based on recommendations of ISO standards 1006-1973 and 1040-1973, with specific reference to the basic module M = 100 mm, and multimodules 3M (300 mm), 6M (600 mm), and 12M (1200 mm).

DIN 18 000 Part 2 Pre-Standard [December 1979] — Modulordnung im Bauwesen--Begriffe (3 pages A4)
[Modular co-ordination in building; Terms and definitions]
The standard sets out terms and definitions, based on ISO standard 1791, including a table of principal terms in German, English, and French.

DIN 18 000 Part 3 [March 1976] — Modulordnung im Bauwesen--Anwendungsregeln
[Modular co-ordination in building; Rules for application] (3 pages A4)
This standard references ISO standard 2848-1974.

DIN 18 000 Part 4 [March 1978] — Modulordnung im Bauwesen--Vorzugsmaße
[Modular co-ordination in building; Preferred dimensions]

DIN 18 000 Beiblatt (Supplement) [February 1977] — Modulordnung im Bauwesen--Erläuterungen, Beispiel
[Modular co-ordination in building; Explanations, example] (8 pages A4)
This supplement contains additional information and explanations related to Parts of DIN 18 000.

DIN 30 798 Part 1 [May 1978] — Modulsysteme--Begriffe [Modular systems; Concepts]

DIN 30 798 Part 2 [February 1979] — Modulsysteme--Grundsätze [Modular systems; Principles]

DIN 30 798 Part 3 Pre-Standard [February 1979] — Modulsysteme--Grundlagen für die Anwendung [Modular systems; Principles for application]

DIN Standards for Building Products Which Reference Modular Coordination

DIN 18 155 Part 2 Pre-Standard [March 1976] — Feinkeramische Fliesen--Formen, Maße, Kennzeichnung, Bezeichnung (3 pages A4) [Ceramic tiles; Designs, dimensions, marking, designation] *Includes reference to DIN 18 000 in explanations.*

DIN 18 158 Pre-Standard [December 1978] — Bodenklinkerplatten (5 pages A4) [Clinker floor tiles] *Includes reference to DIN 18 000.*

DIN Standards Dealing With Tolerances in Building

DIN 18 201 [April 1976] — Maßtoleranzen im Bauwesen--Begriffe, Grundsätze, Anwendung, Prüfung (3 pages A4) [Dimensional tolerances for building; Definitions, principles, application, testing]

DIN 18 202 Part 1 [March 1969] — Maßtoleranzen im Hochbau--Zulässige Abmaße für die Bauausführung--Wand- und Deckenöffnungen, Nischen, Geschoß- und Podesthöhen (3 pages A4) [Dimensional tolerances in building construction; Permissible dimensional deviations of the structure; Wall and floor openings, recesses, storey and landing heights]

DIN 18 202 Part 4 [June 1974] — Maßtoleranzen im Hochbau--Abmaße für Bauwerksabmessungen (4 pages A4) [Dimensional tolerances in building construction; Dimensional deviations of dimensions in building]

Supplement 1 [August 1977] — Erläuterung zum Bezugsverfahren (2 pages A4) [Explanations to the reference method]

DIN 18 202 Part 5 [October 1979] — Maßtoleranzen im Hochbau--Ebenheitstoleranzen für Flächen von Decken und Wänden (2 pages A4) [Dimensional tolerances in building construction; planeness tolerances for surfaces of ceilings and walls] *Replaces DIN 18 202 Part 2 and 18 202 Part 3.*

DIN 18 203 Part 1 [June 1974] — Maßtoleranzen im Hochbau--Vorgefertigte Teile aus Beton und Stahlbeton (2 pages A4) [Dimensional tolerances in building construction; Finished components of concrete and reinforced concrete]

DIN 18 203 Part 2* [May 1979] Maßtoleranzen im Hochbau--Vorgefertigte Teile aus Stahl
[Dimensional tolerances in building construction; Finished components of steel]

DIN Standard Not in Line with International Standards or Recommendations

DIN 4172 [3rd Ed.]* [July 1955] Maßordnung im Hochbau
[Dimensional coordination in building]
This standard states preferred dimensions and preferred number series for use in building and is based on preferences derived from an "octametric" system which emphasizes multiples of 250 mm and 125 mm. Preferred numbers suggested for dimensions smaller than 25 mm are taken directly from the ISO R10 series.
Many DIN building product standards feature sizes derived from preferences in DIN 4172.

Part 5.7 GREECE

Hellenic Organization for Standardization [ELOT]
Didotou 15
Athens 144
Greece/ΕΛΛΑΣ

Technical Committee: ELOT TC 30, "Building Constructions"
Secretariat: ELOT

Information Sources: Reply from Hellenic Organization for Standardization [ELOT];
NBS Collection of National/International Standards.

Greek standards [ENO] dealing with dimensional and modular coordination are now under revision by ELOT as they were published prior to the establishment of ELOT.

The following standards were issued in September 1959:

ENO P 01-001 (1959) Ἡ συσχετισμένη τυποποίησις τῶν δομικῶν στοιχείων **Λεξιλόγιον**
(4 pages A4)
[Modular coordination in building - Glossary]

ENO P 01-002 (1959) **Ἡ συσχετισμένη τυποποίησις τῶν δομικῶν στοιχείων**
ΟΡΟΛΟΓΙΑ (3 pages A4)
[Modular coordination in building - Terminology]

Part 5.8 ITALY

Ente Nazionale Italiano di Unificazione [UNI]
Piazza Armando Diaz, 2
I 20123 Milano
Italy/Italia

Technical Committee: Commissione Edilizia dell'UNI [Commision on Building in UNI]
2ª Sottocommissione "Coordinazione dimensionale"
Gruppo di lavoro 1, "Sistema modulare"

Information Sources: Reply from Director General, UNI;
UNI Elenco delle Publicazzioni n.34, 1979; and,
NBS Collection of National/International Standards.

UNI standards [Norme Italiane] are published in Italian with English subtitles.

UNI Standards for Modular Coordination in Building

UNI 7861 (Nov. 1978) Edilizia - Coordinazione dimensionale e modulare - Terminologia (3 pages A4)
[Building - Dimensional and modular coordination - Terminology]

UNI 7862 (Nov. 1978) Edilizia - Coordinazione delle dimensioni orizzontali - Terminologia (2 pages A4)
[Building - Coordination of horizontal dimensions - Terminology]

UNI 7863 (Nov. 1978) Edilizia - Coordinazione delle dimensioni verticali - Terminologia (2 pages A4)
[Building - Coordination of vertical dimensions - Terminology.

UNI 7864 (Nov. 1978) Edilizia - Coordinazione modulare - Sistema modulare di lunghezze (1 page A4)
[Building - Modular coordination - Modular system of lengths]
References ISO Standard 1006 and partial adoption.

UNI 7865 (Nov. 1978) Edilizia - Coordinazione modulare delle dimensioni verticali - Modello preferenziale di articolazione
(2 pages A4)
[Building - Modular coordination of vertical dimensions - Preferred model of articulation]

UNI 7866 (Nov. 1978) Edilizia - Coordinazione modulare delle dimensioni verticali - Valori preferenziali per le altezze
(1 page A4)
[Building - Modular coordination of vertical dimensions - Preferred sizes for heights]

UNI 7362 (Dec. 1974) Mobili ed apparecchi di cucina - Dimensioni di coordinamento (2 pages A4)
[Kitchen equipment - Coordinating sizes]
References conformance to work in progress in ISO TC 59.

Standards in Course of Publication

UNI (CE 0041) Edilizia - Coordinazione delle dimensioni orizzontali - Piani di riferimento
[Building - Coordination of horizontal dimensions - Reference planes]

UNI (CE 0020) Edilizia - Coordinazione dimensionale e modulare - Schema della giustapposizione di componenti lungo una direzzione orizzontale e sistema di accoppiamento
[Building - Dimensional and modular coordination - Components' juxtaposition scheme according to a horizontal direction and jointing system]

UNI (CE 0021 Part 1) Edilizia - Tolleranze dimensionali - Principi generali e terminologia fondamentale
[Building - Dimensional tolerances - Principles and fundamental vocabulary]
Replaces UNI 3115 (Feb. 1951)

UNI (CE 0021 Part 2) Edilizia - Tolleranze dimensionali - Terminologia specifica
[Building - Dimensional tolerances - Specific vocabulary]

UNI (CE 0022) Edilizia - Tolleranze dimensionali - Identificazione delle tolleranze
[Building - Dimensional tolerances - Identification of tolerances]

UNI (CE 0024) Edilizia - Tolleranze dimensionali - Riscontro degli errori
[Building - Dimensional tolerances - Checking of errors]

UNI (translation of ISO 5731) Apparecchi da cucina - Dimensioni massime d'ingombro
[Kitchen equipment - Limit of size]

UNI (translation of ISO 5732) Apparecchi da cucina - Dimensioni delle aperture degli apparecchi ad incasso
[Kitchen equipment - Sizes of openings for built-in appliances]

Part 5.9 THE NETHERLANDS

Nederlands Normalisatie-Instituut [NNI]
Polakweg 5
Postbus 5810
2280 HV Rijswijk (ZH)
Netherlands

Technical Committees: Modulaire coördinatie (Modular co-ordination)
Secretariat: NNI
Maattoleranties in de bouw (Dimensional tolerances in building)
Secretariat: NNI

Information Sources: Reply from Secretary, Building Division, NNI; NNI Catalogus 1978 + Aanvulling 1 (to April 1979); NBS Collection of National/International Standards.

Netherlands Standards [NEN] are issued in Netherlandish (Dutch) with English subtitles.

The following standards and draft standards deal with modular coordination in building:

NEN 2880 (November 1977)
Modulaire coördinatie bij het bouwen - Begripsomschrijvingen en regels voor de plaats- en maatbepaling van modulaire elementen
(102 pages A4)
[Modular co-ordination in building - Terminology and rules for the determination of location and dimensions of modular elements]
(Supersedes NEN 5700 and NEN 5701)

The standard brings a novel and fundamentally different approach to modular coordination, which is the result of the development of proposals by the Foundation for Architectural Research (SAR), and their application in various housing projects over a decade.
The concepts revolve around the use of (modular) tartan grids (called band grids), with specific rules for the positioning of element groups and junctions between elements (joints).
The standard is well illustrated and it is stated to be in conformance with ISO 1006, 1040, R1790, 1791, and 2848.

Draft NEN 2881 (February 1979)
Maattoleranties voor de bouw - Begripsomschrijvingen en algemene regels (32 pages A4)
[Dimensional tolerances for the building industry - Terminology and general rules]
This Draft is a revision of NEN 5702 and will replace it after it has been wroked out as a definitive standard, expected during 1980.

NPR 2882 (Guideline) — Modulaire coördinatie bij het bouwen - Voorbeelden van toepassing van NEN 2880
[Modular co-ordination in building - Examples of application of NEN 2880]
The publication of this Guideline is expected during 1980.

Draft NEN 2883 (July 1978) — Modulaire coördinatie bij het bouwen - Woningen plus: Bijlage A and Bijlage B
(56 pages A4, plus: 52 pages A4 (A) and 200 pages A4 (B) - Total 308 pages A4)
[Modular co-ordination in building - Dwellings]
The Draft is a specification of NEN 2880 in the field of house building. It includes comprehensive illustrations of constructional aspects.
The publication of NEN 2883 as a definitive standard is expected during 1980.

NPR 2885 (Guideline) (see Draft NEN 2883, July 1978) — Modulaire coordinatie voor de woningbouw - Uitwerking van materiaalplannen volgens NEN 2883
[Modular co-ordination for house building - Development (working-out) of plans for materials according to NEN 2883]
The publication of this Guideline is expected after the publication of NEN 2883, during 1980.

NEN 5702 (August 1965) — Modulaire coordinatie bij het bouwen - Tolerantiestelsel - Begripsbepalingen (4 pages A4)
[Modular co-ordination in building - System of tolerances]
Will be replaced by NEN 2881.

Netherlands standards and draft standards which include modular sizes of building products:

NEN 2489 (October 1976) — Metselbaksteen (44 pages A4)
[Brick of fired clay for masonry]
Discusses modular formats on page 24, including European formats.

NEN 2637 (August 1972) — Maten van binnedeuren (4 pages A4)
[Sizes of interior doors]
Modular formats are shown on page 3.

Draft NEN 3267 (April 1977) — Keukens in woningen - Begripsomschrijvingen, modulaire maten en functionele regels voor de plaats en grbruiksruimte van keukenonderdelen
[Kitchens in dwellings - Vocabulary, modular sizes and functional rules for positioning and utilization areas of kitchen components]
Revision of existing NEN 3267, in which the sizes of kitchen components are not modular. Based on ISO 3055 and NEN 2883. Expected during 1980.

NEN 3317 (December 1967) — Functionele afmetingen van trappen voor gemeenschappelijke trappehuizen (2 pages A4)
[Functional dimensions of staircases for common staircase halls (staircase wells)]

Draft NEN 3679 (October 1976) — Meterkasten in woningen
[House electricity meter cupboards]
Sizes in the Draft are based on NEN 2883. The publication of a definitive standard is expected during 1980.

The following standard includes an annex with rules for the determination of areas of buildings projected in accordance with NEN 2880:

NEN 2630 (May 1979) — Oppervlakten en inhouden van gebouwden - Begripsomschrijvingen en wijze van bepaling
[Areas and volumes of buildings - Definitions and calculations]

Part 5.10 NORWAY

Norges Standardiseringsforbund [NSF]
Haakon VII's gate 2
N - Oslo 1
Norway

Standards-writing body for building standards:

Norges Byggstandardiseringsråd [NBR]
Køben havngt. 10
N - Oslo 5
Norway

Information Sources: Reply from Norges Standardiseringsforbund;
Katalog over Norsk Standard 1980; and,
NBS Collection of National/International Standards.

Norwegian Standards [NS] are issued in Norwegian with English subtitles.

The following Norwegian Standards deal with modular co-ordination in building:

NS 1000 [60-11] Modulsamordning i bygningsindustrien - Grunnleggende prinsipper (8 pages A4)
[Modular co-ordination in the building industry - Basic principles]

NS 1001 [67-12] 3M-planmodul for horisontale mål i råbygg (2 pages A4)
[3M-horizontal module for planning of buildings]

NS 1003 [70-07] Målsamordning av mindre hus i en eller to etasjer
(8 pages A4)
[Modular co-ordination of smaller one and two storey buildings]

NS 1456 [67-07] Mål på åpninger for innsetting av dører og vinduer
(4 pages A4)
[Dimensions of wall openings of doors and windows]

NS 3033 [70-06] Kjøkkeninnredninger og garderobeskap - Generelle bestemmelser og mål (2 pages A4)
[Kitchen equipment and wardrobes - General requirements and sizes]

NS 3149 [76-03] Dører - Størrelser (2 pages A4)
[Doors - Co-ordinating sizes]

NS 3203 [74-11] Vinduer og vindusdører - Størrelser (2 pages A4)
[Windows and French doors - Co-ordinating sizes]

NS 3441 [74-06] Plateformede bygningskomponenter til dekker og til bærende og ikke-bærende innvendige vegger - Preferansemål (1 page A4)
[Large panels for floors and load-bearing and non-bearing interior walls - Preferred sizes]

NS 3461 [74-08] Toleranser i bygningsindustrien - Grunnleggende begreper og terminologi (Midlertidig) (12 pages A4)
[Tolerances in building - Basic terms and terminology (Tentative)]

The following Norwegian Standards modular dimensions for building elements and components:

NS 544 [64-09] Skallmurblokker av betong - Normalblokker og endeblokker (5 pages A4)
[Precast concrete blocks for light walls - Normal and flat ended blocks]

NS 781 [51-05] Innvendige rette trapper av brannfast materiale - Hovedmål (2 pages A4)
[Internal straight stairs of fireproof material - Main dimensions]

NS 790 [53-06] Innvendige trapper av tre - 180° svingtrapp - Etasjehøyde 2800 mm og 2700 mm (1 page A4)
[Internal winding wood staircase - 180° - Floor-to-floor height 2800 mm and 2700 mm]

NS 791 [53-06] Innvendige trapper av tre - 90° svingtrapp - Etasjehøyde 2700 mm og 2600 mm (1 page A4)
[Internal winding wood staircase - 90° - Floor-to-floor height 2700 mm and 2600 mm]

NS 792 [53-06] Innvendige trapper av tre - 90°/90° svingtrapp - Etasjehøyde 2700 mm og 2600 mm (1 page A4)
[Internal winding wood staircase - 90°/90° - Floor-to-floor height 2700 mm and 2600 mm]

NS 793 [53-06] Innvendige trapper av tre - 90° repostrapp - Etasjehøyde 2700 mm og 2600 mm (1 page A4)
[Internal wood staircase with quarterspace landing 90° - Floor-to-floor height 2700 mm and 2600 mm]

NS 794 [53-06] Innvendige trapper av tre - Dobbeltløpet rett repostrap - Etasjehøyde 2800 mm og 2700 mm (2 pages A4)
[Internal wood staircase with halfspace landing - Floor-to floor height 2800 mm and 2700 mm]

NS 835 [52-12] Personheiser - Maskinrom på topp og motvekt bak kupe - Hovedmål for sjakt, kupe og maskinrom (1 page A4)
[Lifts (elevators) - Machine room on top floor and counterweight behind lift car - Main dimensions for shaft, car and machine room]

NS 836 [52-12] Personheiser - Maskinrom på topp og movekt på side av kupe (1 page A4)
[Lifts (elevators) - Machine room on top floor and counterweight on side of car]

NS 837 [52-12] Vare- og personheiser - Alminnelige dimensjoneringsregler for sjakter (1 page A4)
[Lifts (elevators) for goods and passengers - Main dimensions of lift well]

NS 1130. Del 1 [67-02] (Part 1) Innvendige dører av tre - Mål på glatte dører uten overfals (Midlertidig) (2 pages A4)
[Interior wooden doors - Dimensions for flush, non-rebated doos (Interim)]

NS 1130. Del 2 [68-01] (Part 2) Innvendige dører av tre - Mål for baderomsdører (Midlertidig) (3 pages A4)
[Interior wooden doors - Dimensions for bathroom doors (Interim)]

NS 1458 [67-10] Vinduer og vindusdører av tre - Utvendige karmmål UJF med fylling og utvendig panel (4 pages A4)
[External dimensions for wooden windows and French door frames]

NS 3000 [67-06] Teglstein (7 pages A4)
[Clay bricks] *Includes modular format.*

NS 3012 [68-05] Betonghullblokk (4 pages A4)
[Hollow concrete blocks]

NS 3014 [68-05] Fasadestein av betong (4 pages A4)
[Facing concrete bricks]

NS 3015 [68-05] Forskalingsblokk (4 pages A4)
[Formwork concrete block]

NS 3016 [70-08] Gassbetong (trykkherdet lettbetong) - Blokker for liming (7 pages A4)
[Lightweight cellular concrete blocks (Autoclaved aerated concrete)]

NS 3017 [70-08] Lettklinkerbetong - Blokk for muring (7 pages A4)
[Lightweight aggregate concrete building blocks]

NS 3019 [70-10] Tak- og gulvelelementer av gassbetong (trykkherdet lettbetong) (8 pages A4)
[Roof and floor units - Lightweight cellular concrete]

NS 3020 [70-10] Liggende veggelelementer av gassbetong (trykkherdet lettbetong) (3 pages A4)
[Horizontal wall units - Lightweight cellular concrete]

NS 3021 [70-10] Isolajonselementer av gassbetong (trykkherdet lettbetong) (3 pages A4)
[Insulation units - Lightweight cellular concrete (Autoclaved aerated concrete)]

NS 3025 [69-07] Treullcementplater (Midlertidig) (8 pages A4)
[Wood wool slabs (Interim)]

Part 5. NORWAY - (Continued)

NS 3061 [71-02] Servanter - Dimensjoner og krav (3 pages A4)
[Wash basins - Dimensions and requirements]

NS 3440 [74-10] Takbærere - Mål, merking (4 pages A4)
[Roofs - Loadbearing units - Dimensions]

Drawing Practice:

NS 3035 [70-11] Byggetegninger - Grunnregler (23 pages A4)
[Building drawings - Basic rules]

Part 5.11 PORTUGAL

Direcção-Geral de Qualidade [DGQ]
Serviço de Normalização
Rua José Estêvão, 83-A
1199 Lisboa
Portugal

Information Source: Catálogo das Normas Portuguesas 1975;
Centro de Normalização Lista Numérica 1975-76 and 1977;

The following Portuguese Standard [NP] on modular coordination in building was issued in 1956 by the Repartição de Normalização [IGPAI], Lisboa, Portugal:

NP 88 - 1956 Modulação das construções - Directivas fundamentais

Part 5.12 SPAIN

Instituto Nacional de Racionalizacion
y Normalización [IRANOR]
Zurbano 46
Madrid 10
Spain/España

Information Source: IRANOR Catálogo Provisional de Normas UNE 1978;
NBS Collection of National/International Standards

There are no Spanish Standards (UNE - Una Norma Española) dealing directly with the principles or application of modular coordination in building, but a number of UNE standards include product dimensions which fit with preferences used in a modular building environment.

UNE 24 007 (3.51) Azulejos para revestir paredes

UNE 24 017 (11.54) Escaleras de madera de peldaños altos y tramos rectos, para viviendas

UNE 24 018 (11.54) Escaleras de madera de peldaños bajos y tramos rectos, para viviendas

UNE 24 019 (11.54) Escaleras de madera de tramos rectos y peldaños altos, con los últimos en abanico, para viviendas

UNE 24 020 (11.54) Escaleras de madera de tramos rectos y peldaños bajos, con los últimos en abanico, para viviendas

UNE 24 021 (11.54) Escaleras de madera de peldaños altos, con los superiores en abanico, para viviendas

UNE 24 022 (11.54) Escaleras de madera de peldaños bajos, con los superiores en abanico, para viviendas

UNE 41 004 (7.55) Calidades y medidas de los ladrillos de arcilla cocida

UNE 41 007 (10.52) Calidades y medidas de las planchas lisas y onduladas de amianto-cemento

UNE 41 026 (1.55) Pizarra para cubiertas

UNE 41 061 (7.55) Ladrillos sílico-calcáreos

Part 5.13 SWEDEN

Standardiseringskommissionen i Sverige [SIS]
Tegnérgatan 11
Box 3295
S-103 66 **Stockholm**
Sweden/Sverige

Technical Committees: BST/RG 1 Modular Coordination
Secretariat: Byggstandardiseringen [BST]
(The Building Division of SIS)

Information Sources: Reply from Standardiseringskommissionen i Sverige (Swedish Standards Institution), prepared by BST; Register over Svensk Standard 1979 - SIS; and, NBS Collection of National/International Standards

Swedish standards are issued in Swedish with English subtitles. A number of Swedish standards are also translated into English, either as bilingual editions, or in separate editions. Some standards are also issued in French or German translations.
English translations are available for documents marked with an asterisk (*); English/French translations with a double asterisk (**).

Swedish standards issued since January 1978 use the prefix SS; earlier standards are prefixed SIS.

The following Swedish standards deal with modular co-ordination in building:

SIS 05 01 00 (1975) 2nd Edition ** Modulkoordinering - Terminologi (6 pages A4)
[Modular co-ordination - Vocabulary]

SIS 05 01 01 (1975) 3rd Edition Modulkoordinering - Principer och regler
(6 pages A4)
[Modular co-ordination - Principles and rules]

SIS 05 01 02 (1972) 2nd Edition * Modulsamordning - Regler för modulprojektering
(5 pages A4)
[Modular co-ordination - Rules for modular planning]

SIS 05 01 03 (1972) 1st Edition * Modulsamordning - Våningshöjder (1 page A4)
[Modular co-ordination - Storey heights]

SIS 05 01 04 (1975) 2nd Edition Modulkoordinering - Hallbyggnader - Horisontala stommått (3 pages A4)
[Modular co-ordination - Industrial buildings - Horizontal sizes for loadbearing structure]

SIS 05 01 05 (1975) 2nd Edition Modulkoordinering - Hallbyggnader - Vertikala mått för ytterväggar (2 pages A4)
[Modular co-ordination - Industrial buildings - Vertical sizes of external walls]

SIS 05 01 16 (1970) Modulsamordning - Undertak - Horisontala mått (3 pages A4)
[Modular co-ordination - Suspended ceilings - Horizontal dimensions]

SIS 05 01 17 (1973) Modulsamordning - Inredning (3 pages A4)
[Modular co-ordination - Fittings]

SIS 05 01 18 (1975) Modulkoordinering - Installationer (4 pages A4)
[Modular co-ordination - Services and Drainage]

The following Swedish standards deal with tolerances in building:

SIS 05 02 11 (1971) Byggtoleranser - Toleransvidder (1 page A4)
[Tolerances for building - Series of tolerance widths]

SIS 05 02 12 (1974) Byggtoleranser - Toleranssystem (11 pages A4)
[Tolerances for building - Tolerance system]

SIS 05 02 13 (1974) Byggtoleranser - Samspel mellan toleranser (4 pages A4)
[Tolerances for building - Interaction among tolerances]

SIS 05 02 14 (1974) Byggtolersnser - Samspel mellan toleranser - Formler Anvisningar (29 pages A4)
[Tolerances for building - Interaction formulas]

SIS 05 02 15 (1974)* Byggtoleranser - Terminologi (10 pages A4)
[Tolerances for building - Terminology]
(The English edition has 7 pages A4)

SS 05 02 16 (1978) Byggtoleranser - Krav och redovisning (5 pages A4)
[Tolerances for building - Requirements and results]

SIS 05 05 01 (1973) Toleranser - Grundläggande terminologi (5 pages A4)
[Basic terminology on tolerances (general)]

The following Swedish standards deal with modular elements, assemblies, and components for use in building:

SIS 05 03 10 (1975) Måttsättningsprinciper för installationer i byggnader (4 pages A4)
[Dimensioning - Services and drainage]

SIS 05 03 20 (1974) Takbärare - Grundläggande mått (3 pages A4)
[Roofs - Loadbearing components - Basic sizes]

SIS 22 01 10 (1972) Mursten - Modulformat - Grundläggande mått (1 page A4)
[Modular bricks - Basic sizes]

SIS 22 01 11 (1975) Mursten - Generella fordringar - Provning
(7 pages A4)
[Bricks - General requirements - Testing]
Includes nominal dimensions for modular and other brick sizes.

SIS 22 82 51 (1976) 2nd Edition Lättbetongprodukter - Lättklinkerblock for murning -
(3 pages A4)
[Lightweight aggregate concrete - Building blocks]

SIS 23 42 05 (1973) Plywoodskivor - Mått och form (3 pages A4)
[Plywood - Sizes and form]

SIS 23 48 01 (1968) Spånskivor (8 pages A4)
[Particle boards]

SIS 23 51 11 (1975) Träfiberskivor - Fordringar (4 pages A4)
[Fibre building boards - Requirements]

SIS 27 11 10 (1972) Skivor - Grundläggande mått (1 page A4)
[Sheets (boards) - Basic sizes]

SIS 27 11 11 (1972) Profilerade skivor - Delningar (1 page A4)
[Profiled sheets (boards) - Pitch]

SS 76 35 01 (1979) Hissar - Typer och storlekar (2 pages A4)
[Lifts (elevators) - Types and sizes]

SIS 80 00 10 (1976) Inredning för förskolor och fritidshem - Översikt
(4 pages A4)
[Furnishing and fittings for nursery schools - Summary]

SIS 80 00 20 (1976) Inredning för sjukvårdsbyggnader - Översikt av standarder - Allmänna bestämmelser (10 pages A4)
[Furnishing and fittings for hospitals - Summary of Swedish standards - General requirements]

SIS 81 20 07 (1973) Lättbetongprodukter - Liggande väggelement - Grundläggande mått (1 page A4)
[Lightweight concrete - Horizontal wall components - Basic sizes]

SIS 81 20 08 (1973) Lättbetongprodukter - Takelement - Grundläggande mått (1 page A4)
[Lightweight concrete - Roof components - Basic sizes]

SIS 81 20 09 (1973) Lättbetongprodukter - Bjälklagselement - Grundläggande mått (1 page A4)
[Lightweight concrete - Floor components - Basic sizes]

SIS 81 20 50 (1975) Bjälklags- och innerväggselement - Grundläggande mått (1 page A4)
[Floor components and interior wall components - Basic sizes]

SIS 81 21 01 (1971) Sandwichelement av betong. Mått (pages A4)
[Concrete sandwich panels - Dimensions]

SIS 81 21 02 (1973) Lättbetongprodukter - Liggande väggelement av porbetong - Mått (2 pages A4)
[Autoclaved aerated concrete - Horizontal wall components - Sizes]

SIS 81 21 04 (1973) Lättbetongprodukter - Stående, bärande väggelement av porbetong - Mått (3 pages A4)
[Autoclaved aerated concrete - Vertical loadbearing wall components - Sizes]

SIS 81 22 01 (1975) Lättbetongprodukter - Liggande väggelement av lättklinkerbetong - Mått (2 pages A4)
[Lightweight aggregate concrete - Horizontal wall components - Sizes]

SIS 81 22 02 (1975) Lättbetongprodukter - Takelement av lättklinkerbetong - Mått (2 pages A4)
[Lightweight aggregate concrete - Roof components - Sizes]

SIS 81 22 03 (1975) Lättbetongprodukter - Bjälklagselement av lättklinkerbetong - Mått (2 pages A4)
[Lightweight aggregate concrete - Floor components - Sizes]

SIS 81 24 01 (1972) Bjälklagselement av betong - Grundläggande mått (1 page A4)
[Concrete floor slabs - Basic sizes]

SIS 81 24 02 (1974) 2nd Edition Bjälklagselement av betong med plan översida och undersida - Mått och form (4 pages A4)
[Concrete floor slabs with plane upper and lower surfaces - Dimensions and form]

SIS 81 24 03 (1974) 2nd Edition Bjälklagselement av betong med TT-format tvärsnitt - Mått och form (3 pages A4)
[Concrete double-T floor slabs - Dimensions and form]

SIS 81 24 07 (1973) Lättbetong rodukter - Takelement av porbetong - Mått (2 pages A4)
[Autoclaved aerated concrete - Roof components - Sizes]

SIS 81 24 08 (1973) Lättbetongprodukter - Bjälklagselement av porbetong - Mått (2 pages A4)
[Autoclaved aerated concrete - Floor components - Sizes]

SIS 81 26 01 (1970) Tvärmått för rektangulära betongpelare (2 pages A4)
[Cross-sectional dimensions of rectangular concrete columns]

SIS 81 26 02 (1971) Tvärmått för rektangulära betongbalkar (2 pages A4)
[Cross-sectional dimensions of rectangular concrete beams]

SIS 81 26 03 (1973) Flänsbalkar av betong - Tvärmått (2 pages A4)
[Flanged concrete beams - Cross-sectional dimensions]

SIS 81 32 01 (1974) 2nd Edition Trappor - Terminologi (3 pages A4)
[Stairs - Terminology]
Includes titles of terms in English.

SIS 81 32 21 (1967) Trappor - Trappelement med bärande kupa för tvåloppstrappa - Mått (4 pages A4)
[Stairs - Prefabricated stair units carried by slabs, for one-landing floor-to-floor staircases - Dimensions]

SIS 81 32 22 (1967) Trappor - Trappelement med bärande vangstycken för tvåloppstrappa - Mått (2 pages A4)
[Stairs - Prefabricated stair units carried by strings for one-landing floor-to-floor staircases - Dimensions]

SIS 81 34 05 (1973) Balkongplan och loftgångsplan - Grundläggande mått (2 pages A4)
[Balcony floors - Coordinating sizes]

SIS 81 34 06 (1973) Betongelement för balkongplan och loftgångsplan - Tillverkningsmått och detaljer (4 pages A4)
[Concrete balcony floor slabs - Work sizes and details]

SIS 81 61 01 (1973) Lättbetongprodukter - Stående, icke bärande väggelement av porbetong - Mått (2 pages A4)
[Autoclaved aerated concrete - Vertical non-load-bearing wall components - Sizes]

SIS 81 70 51 (1972) 2nd Edition Luckor av stål och metall - Sidhängda luckor - Grundläggande mått (1 page A4)
[Small steel and metal doors, hinged - Basic sizes]

SIS 81 70 52 (1971) Dörrar - Sidhängda dörrar - Grundläggande mått (2 pages A4)
[Hinged doors - Co-ordinating sizes]

SIS 81 70 54 (1974) Garageportar - Grundläggande mått (2 pages A4)
[Garage doors - Basic sizes]

SIS 81 70 55 (1974) Industriportar - Grundläggande mått (2 pages A4)
[Industrial doors - Basic sizes]

SIS 81 73 03 (1972) Dörrar - Lätta innerdörrar av trä - Mått (4 pages A4)
[Light wooden doorsets - Sizes]

SIS 81 73 04 (1973) Dörrar - Innerdörrar av trä med glasöppning - Mått (4 pages A4)
[Wooden doorsets with glazed openings - Sizes]

SIS 81 73 05 (1973) Dörrar - Innerdörrar av trä för särskilda funktionskrav - Mått (5 pages A4)
[Wooden doorsets for special functional requirements - Sizes]

SIS 81 73 07 (1974) Dörrar - Karmar av trä för rumshöga dörrenheter (3 pages A4)
[Wooden door frames for ceiling height sets]

SIS 81 73 09 (1975) 2nd Edition Ytterdörrar för lantbruksbyggnader (3 pages A4)
[External doors for farm buildings]

SIS 81 73 24 (1977) Dörrar - Dörrar för fredsanvändning i skyddsrum (5 pages A4)
[Doors for shelters]

SIS 81 76 02 (1972) 2nd Edition Dörrar av stål och metall - Sidhängda dörrar och skjutdörrar - Mått (3 pages A4)
[Steel and metal doors - Sizes]

SIS 81 76 03 (1972) 2nd Edition Luckor av stål och metall - Sidhängda luckor - Mått (2 pages A4)
[Small steel and metal doors - Sizes]

SIS 81 76 04 (1972) 2nd Edition Dörrar av stål och metall - Enkelslagdörrar för hisschakt - Mått - Hissfronter med enkelslagdörr - Mått (6 pages A4)
[Steel and metal doors for lift (elevator) wells - Sizes]

SIS 81 76 05 (1974) Dörrar - Dörrkarmar av stål och metall (2 pages A4)
[Steel and metal door frames]

SIS 81 80 50 (1969) Fönstersnickerier - Fönster och fönsterdörrar med kopplade bågar - Grundläggande mått (3 pages A4)
[Wooden window frames with coupled sashes - Basic sizes]

SIS 81 80 51 (1969) Fönstersnickerier - Fönster och fönsterdörrar för isolerrutor - Grundläggande mått (2 pages A4)
[Wooden window frames for sealed units - Basic sizes]

SIS 81 81 20 (1975) Fönster för lantbruksbyggnader (1 page A4)
[Windows for farm buildings]

SIS 81 82 10 (1972) Släta beklädnadselement av armerad betong - Mått (3 pages A4)
[Plane reinforced concrete cladding panels - Dimensions]

SIS 82 21 08 (1971) Badkar (2 pages A4)
[Bath tubs]

SIS 82 21 09 (1971) Duschkar (2 pages A4)
[Shower bath tubs]

SS 82 30 41 (1979) Inredning för bostäder - Diskbänkbeslag - Översikt och allmänna bestämmelser (pages A4)
[Furnishing and fittings for housing - Sinks - Summary and general requirements]

SIS 82 30 52 (1973) Inredning för bostäder - Tvättbänksbeslag och tvättlådor - Storlekar (1 page A4)
[Furnishing and fittings for housing - Clothes washing sinks and bowls (tubs) - Overall sizes]

SIS 82 30 53 (1973) Inredning för bostäder - Tvättbänksbeslag och tvättlådor - Mått och allmänna bestämmelser
(3 pages A4)
[Furnishing and fittings for housing - Clothes washing sinks and bowls (tubs) - Dimensions and general requirements]

SIS 82 30 56 (1976) Inredning för förskolor och fritidshem - Diskbänks-beslag JM 18 (1 page A4)
[Furnishing and fittings for nursery schools - Sink]

SIS 82 30 58 (1976) Inredning för sjukvårdsbyggnader - Diskbänksbeslag - Sköljlåda (1 page A4)
[Furnishing and fittings for hospitals - Sink]

SIS 82 30 59 (1976) Inredning för sjukvårdsbyggnader - Diskbänksbeslag med en disklåda (1 page A4)
[Furnishing and fittings for hospitals - Sink]

SIS 82 30 60 (1976) Inredning för sjukvårdsbyggnader - Diskbänksbeslag med två dislådor (1 page A4)
[Furnishing and fittings for hospitals - Double sink]

SIS 82 71 01 (1972) 2nd Edition Luftdon - Ytterväggsgaller med fästram (2 pages A4)
[Framed external wall gratings]

SIS 82 71 02 (1972) Luftdon - Ytterväggsgaller utan fästram (2 pages A4)
[External wall gratings]

SIS 82 72 07 (1975) Ventilationskanaler av plåt - Kanaldetaljer - Koordineringsmått (16 pages A4)
[Ventilating sheet metal ducts - Duct components - Co-ordinating sizes]

SIS 83 34 10 (1974) Fönsterbänkar - Grundläggande mått (2 pages A4)
[Window boards - Basic sizes]

SS 83 41 27 (1979) Inredning för bostäder - Grundläggande mått
(2 pages A4)
[Furnishing and fittings for housing - Co-ordinating sizes]

SS 83 41 28 (1979) Inredning för bostäder - Skåp - Översik och allmänna bestämmelser (8 pages A4)
[Furnishing and fittings for housing - Storage units - Summary and general requirements]

SIS 91 11 00 (1976) Trappor - Trappelement - Inplaceringsregler (4 pages A4)
[Stairs - Rules for the location of stair components]

SIS 91 11 01 (1976) Trappor - Trappelement - Grundläggande mått (3 pages A4)
[Stairs - Stair components - Basic sizes]

SS 94 21 01 (1978) 2nd Edition Elinstallationer i bostadshus - Uttag och andra anslutningspunkter för el och tele (6 pages A4)
[Electrical installations in dwellings - Socket outlets and other connection points for electrical supply and telecommunication]

SIS 94 21 41 (1977) Ljusarmaturer - Lysrörsarmaturer samordnade med undertak - Grundläggande mått (3 pages A4)
[Tubular fluorescent lamps co-ordinated with false ceilings - Basic sizes]

Part 5.14 SWITZERLAND

Schweizerische Normen-Vereinigung [SNV]
Kirchenweg 4
CH-8032 Zürich
Switzerland/Schweiz

Swiss standards, designated SN (Schweizerische Normen), are issued by a number of standards writing organizations which have united in SNV. The standards for the building and construction industry are prepared by:

CRB - Schweizerische Zentralstelle für Baurationalisierung
Seefeldstrasse 214
CH-8008 Zürich

SIA - Schweizerischer Ingenieur- und Architekten-Verein
Selnaustrasse 16
CH-8039 Zürich

Technical Committees: Modular Co-ordination (including Dimensional Co-ordination
Secretariat: CRB
Tolerances and Joints
Secretariat: SIA

Information Sources: Reply from Swiss Centre for Building Rationalization [CRB];
NBS Collection of National/International Standards.

CRB/SNI standards are issued in three-language editions: German, French, and Italian.

Swiss Standards Dealing With Modular Coordination in Building:

SN 501 500 (1978) Modulordnung im Hochbau - Begriffe (7 pages A4)
[Modular co-ordination in building - Terms and Definitions]

SN 501 501 (1978) Modulordnung im Hochbau - Grundlagen (15 pages A4)
[Modular co-ordination in building - Principles]

SN 501 414 (1979) Masstoleranzen im Bauwesen - Begriffe, Grundsätze, und Anwendungsregeln (16 pages A4)
[Dimensional tolerances in building construction - Terms, principles and rules for application]

SN 502 500 (1978) Modulordnung im Hochbau - Symbole (8 pages A4)
[Modular co-ordination in building - Symbols]

SN 520 510 (1979) Modulordnung im Hochbau - Horizontale Koordination (16 pages A4)
[Modular co-ordination in building - Horizontal co-ordination]

SN 520 511 (1979) Modulordnung im Bauwesen - Vertikale Koordination (12 pages A4)
[Modular co-ordination in building construction - Vertical co-ordination]

SN 521 611 (1979) Modulordnung im Bauwesen - Sanitäranlagen im Wohnungsbau: Hygieneräume (19 pages A4)
[Modular co-ordination in building construction - Rooms for hygiene and body care in dwellings]

SN 521 614 (1979) Modulordnung im Wohnungsbau - Reihensanitärräume (20 pages A4)
[Modular co-ordination in housing construction - Sanitary facilities in rows for collective use]

SN 544 500 (1970) Abmessungen von keramischen Wandplatten (7 pages A4)
[Dimensions of ceramic wall tiles]

SN 545 600 (1979) Modulordnung im Bauwesen - Türen: Begriffe (12 pages A4)
[Modular co-ordination in building construction - Doors: Terms and definitions]

SN 545 601 (1979) Modulordnung im Bauwesen - Wandöffnungen für Türen (8 pages A4)
[Modular co-ordination in building construction - Structural reveals (wall openings) for doors]

SN 545 602 (1979) Modulordnung im Bauwesen - Türrahmen und Türblätter (16 pages A4)
[Modular co-ordination in building construction - Door frames and door leaves]

Part 5.15 TURKEY

Turkish Standards Institution (Türk Standardlari Enstitüsü) [TSE]
Necatibey Caddesi 112
Bakanliklar
Ankara
Turkey

Technical Committee: Engineering Services Working Group of TSE

Information Sources: Reply from Turkish Standards Institution;
1978 Türk Standardlari Kataloğu;
NBS Collection of National/International Standards.

Turkish Standards are issued in the Turkish language, with subtitles in English.

Turkish standards [TS] Dealing With Modular Co-ordination in Building:

TS 2014:1975.04 Modüler Koordinasyon - Temel Modül
[Modular co-ordination - Basic module]
References ISO 1006-1973 and has same title.

TS 2015:1975.04 Modüler Koordinasyon Yatay Koordinasyon Boyutlari İçin "Büyük Modüller"
[Modular co-ordination - Multimodules for horizontal coordinating dimensions]
References ISO 1040-1973 and has same title.

TS 2016:1975.04 Modüler Koordinasyon Konutlar İçin Kat Yükseklileri ve Hacim Yükseklikleri
[Modular co-ordination - Storey heights and room heights for residential buildings]
References ISO 1789-1973 and has same title.

TS 2017:1975.04 Modüler Koordinasyon - Terimler
[Modular co-ordination - Vocabulary]
References ISO 1791-1973 and has same title.

TS 2018:1975.04 Modüler Koordinasyon İç ve Diş Kapilar İçin Koordinasyon Boyutlari
[Modular co-ordination - Co-ordinating sizes for door sets - External and internal]
References ISO 2776-1974 and has same title.

TS 2019:1975.04 Modüler Koordinasyon Binalarda Kullanilan Düz, Rijid Levha ve Panolar İçin Koordinasyon Boyutlari
[Modular co-ordination - Co-ordinating sizes for rigid flat sheet boards used in building]
References ISO 2777-1974 and has same title.

TS 2020:1975.04 Modüler Koordinasyon İlkeler ve Kuraller
[Modular co-ordination - Principles and rules]
References ISO 2848-1974 and has same title.

Part 6.1 BULGARIA

State Committee for Standardization [DKC]
at the Council of Ministers
21, 6th September Str.
Sofia
Bulgaria

Information Source: NBS collection of National/International Standards

Bulgarian Standards [BDS] are issued in the Bulgarian language and in the Cyrillic alphabet. They have subtitles in Russian and English.

The following standards deal with modular coordination in building:

БЛС 61-70 Ж02
[BDS 61-70]
Модулна координация на размерите в градо-строителството. Основни положения (заменя БДС 61-64) (14 pages 204 x 288 mm)
Modulna koordinatsija na razmerite v sgrado-stroitelstvoto. Osnovni polozheniya (zamenya BDC 61-64)
[Modular coordination of dimensions in building construction. General positions]

БДС 5943-66
[BDS 5943-66]
Параметри на оборудването, съгласувани с единната модулна система в строителството. Терминология (2 pages 208 x 288 mm)
Parametri na oborudvaneto, s"glasuvani s edinnata modulna sistema v stroitelstvoto. Terminologiya.
[Parameters of the equipment conciliated with the unified module (modular) system in the building]

БДС 8270-70
[BDS 8270-70]
Модулна координация на размерите в градо-строителството. Терминология.
Modulna koordinatsija na razmerite v sgrado-stroitelstvoto. Terminologiya.
(3 pages 144 x 209 mm)
[Modular coordination of the dimensions in the construction of buildings - Terminology]

Part 6.2 CZECHOSLOWAKIA

Úřad pro normalizaci a měření [CSN]
[Office for Standards and Measurements]
Václavské náměsti 19
113 47 Praha 1
Czechoslowakia

Information Sources: Reply from Úřad pro normalizaci a měření (the Czechoslowak member body of ISO);
Seznam československých státních a oborových norem a norem RVHP [1] & [2]; 1.1.1978

Czechoslovak Standards [ČSN] are issued in the Czech language. English translations have been provided by CSN. Standards marked (r) are at present under review.

ČSN 73 0005 [1974] Modulová koordinace a unifikace rozměrů ve výstavbě
[Modular coordination and unification of dimensions in building construction] (r)

ČSN 73 0010 [1961] Úchylky a tolerance ve výstavbě
* a 8.71 (Amendment a--1971)
[Deviations and tolerances in construction] (r)

ČSN 73 0420 [1971] Vytyčovací odchylky stavebnictví--Základní ustanovení
[Staking-out deviations in building--fundamental stipulations] (r)

ČSN 73 0421 [1971] Vytyčovací odchylky stavebnich objektů s prostorovou skladbou
[Staking-out deviations of buildings and structures with spatial composition] (r)

ČSN 73 2105 [1978] Navrhování geometrické přesnosti stavebních soustav a budov (návrh)
[Designing of geometrical precision of building systems and buildings - (Draft ČSN)]

Part 6.3 GERMAN DEMOCRATIC REPUBLIC

Ministerrat der Deutschen Demokratischen Republik
Amt für Standardisierung, Meßwesen und Warenprüfung
Berlin
DDR

Responsible Organization: Bauakademie der Deutschen Demokratischen Republik, Institut für Projektierung und Standardisierung [BA/IPS]
1125 Berlin
Plauener Straße
DDR

Information Sources: Reply from Bauakademie der Deutschen Demokratischen Republik; TGL Verzeichnis Staatlicher Standards der DDR.

DDR Standards are published in German.

DDR Standards Dealing With Modular Coordination in Building:

TGL 8471 [12.67] Maßordnung im Bauwesen - Grundbestimmungen
[Modular coordination in building; Principles]

TGL 8472 [12.67] Gebäude - Systemlinien, Systemmaße, Baurichtmaße
[Buildings; Reference lines, reference dimensions; nominal dimensions]

DDR Standards Dealing With Tolerances in Building:

TGL 7255/01 [10.60] Maßtoleranzen im Bauwesen - Begriffe, Grundtoleranzen, Anwendung, Prüfung
[Dimensional tolerances in building; Definitions, basic tolerances, application, testing]

TGL 7255/02 [10.60] Maßtoleranzen im Bauwesen - Zuordnung von Bauteilen, und Fertigungsverfahren sowie Meßverfahren
[Dimensional tolerances in building; Relation of components to production and measuring processes]

TGL 9239/01 [10.60] Maßtoleranzen im Bauwesen - Fenster- und Türöffnungen, Treppenlöcher, Geschoß- und Podesthöhen.
[Dimensional tolerances in building; Window and door openings, stair openings, storey and landing heights]

TGL 12864/01 [04.63] Maßtoleranzen im Bauwesen - Baupassungen; Begriffe, Berechnung, Baupaßsystem.
[Dimensional tolerances in building; Fits; Definitions, calculation, system of fits]

TGL 12864/02 [04.63] Maßtoleranzen im Bauwesen - Baupassungsauswahl-Tabellen
[Dimensional tolerances in building; Selection tables of fits]

TGL 12873 [06.62] Maßtoleranzen im Bauwesen - Fertigteile aus Beton und Stahlbeton
[Dimensional tolerances in building; Precast concrete components]

TGL 12875 [02.72] Maßtoleranzen im Bauwesen - Fertigteile aus Gips und Anhydrit
[Dimensional tolerances in building; Precast gypsum components]

Part 6.4 HUNGARY

Magyar Szabvànyügyi Hivatal [MSZH]
[Hungarian Office for Standardization]
Postafiòk 24
1450 Budapest 9
Hungary/Magyarorszàg

Technical Committee: Technical Committee of MSZH--Source:CMEA

Information Sources: Reply from Director of International Relations Department, Hungarian Office for Standardization; MSZ Szabvànyjegyzék 1979.

Hungarian Standards [MSZ] are issued in the Hungarian language. English translations were provided by the Hungarian Office for Standardization.

The following Hungarian Standards deal with modular co-ordination in building:

MSZ 7651-74 Az épitési modul alapelvei (2 pages)
[Modular co-ordination. Principles of co-ordination]

MSZ 7652-74 Az épitési modul terminològiàja (6 pages)
[Modular co-ordination. Terminology]

MSZ 7653-74 Az épitési modul alkalmazàsi elöiràsai (19 pages)
[Modular co-ordination. General rules of application]

MSZ 7654-74 Az épitési modul méretsorok (7 pages)
[Modular co-ordination. Series of modular sizes]

MSZ 7655-67 Épitési modul. Üzemi technològiai berendezések méreteinek modulkoordinàlàsa. Alapfogalmak (2 pages)
[Building module and the modular co-ordination of the dimensions of plant technology equipment. Fundamental definitions]

MSZ 7656-74 Nyìlàszàrò szerkezetek modulméretei (4 pages)
[Modular co-ordination. Modular sizes of doors and windows]

MSZ 7658/1-65 Épitöipari mérettürések terminòlogiàja (5 pages)
[Terminology of tolerances in the building industry]

MSZ 7658/2-67 Épitöipari mérettürések alapelvei (5 pages)
[Principles of tolerances in the building industry]

MSZ 7659-65 Épitési modul. Ipari épületek fö méretei (10 pages)
[Modular co-ordination. Main dimensions of industrial buildings]

MSZ 7660-66 Épitési modul. Mezögazdasàgi épületek fö méretei (4 pages)
[Modular co-ordination. Main dimensions of agricultural buildings]

MSZ 7680/1-76 Modulkoordinàciò az épitészetben, szerkezettervezés - A modulkoordinàciò àttekintése (3 pages)
[Modular co-ordination in building, structural design. The survey of modular co-ordination]

MSZ 7680/2-76 Modulkoordinàciò az épitészetben, szerkezettervezés - Szàmsorok, méretkombinàciòk (17 pages)
[Modular co-ordination in building, structural design. Number series, dimension combination]

MSZ 7680/3-76 Modulkoordinàciò az épitészetben, szerkezettervezés - Épületek szerkesztése modulkoordinàlt szerkezeti elemekböl (14 pages)
[Modular co-ordination in building, structural design. The construction of buildings with modular co-ordinated structural elements]

MSZ 7680/4-76 Modulkoordinàciò az épitészetben, szerkezettervezés - Szerkezeti teherhordò elemek kapcsolatai (14 pages)
[Modular co-ordination in building, structural design. Junctions between load-bearing structural elements]

MSZ 7680/5-77 Modulkoordinàciò az épitészetben, szerkezettervezés - Szerkezeti, nem teherhordò elemek kapcsolatai (12 pages)
[Modular co-ordination in building, structural design. Joints of non load-bearing structural elements]

MSZ 7681/1-79 Modulkoordinàciò az épitészetben, könnyüszerkezetes épités - Alkalmazàsi irànyelvek (11 pages)
[Modular co-ordination in building, light-weight construction. Rules of application]

MSZ 15182-76 Vendéglàtòipari modulméretü berendezések fö méretei (7 pages)
[Modular equipment for catering trade. Main dimensions]

Part 6.5 POLAND

Polski Komitet Nomalizacji, Miar i Jakości [PKNiM]
(Polish Committee of Standardization and Measures)
00-139 Warszawa/Warsaw
ul. Elektoralna 2
Poland

Technical Committees: Polski Komitet Normalizacji, Miar i Jakości
Zespół Budownictwa, 00-139 Warszawa, Poland
Centralny Ośrodek Badawczo - Projektowy Budownictwa Ogólnego
Samodzielny Zespół do Spraw Normalizacji,
00-094 Warszawa, ul. Wierzbowa 9/11, Poland

Information Sources: Reply from Director, Polish Committee of Standardization and Measures; Members of CIB W24/IMG;
1979 Katalog Polskich Norm (Part VII)

Polish national standards are issued in the Polish language. Translations have been provided by PKNiM. Some of the standards listed are under review, and revised versions are likely to be published in 1980.

The following Polish standards deal with modular coordination in building:

Part VII: Building Industry and Building Materials

Grupa VII 02. Normy obliczania i projektowania
[Group VII 02. Calculating and designing standards]

B-02352 (62) Koordynacja wymiarowa w budownictwie. Nazwy i określenia. (obow. od 1.8.63 r.)
[Dimensional coordination in building - Terminology]

B-02353 (62) Koordynacja wymiarowa w budownictwie. Wartosci modularne. (obow. od 1.8.63 r.)
[Dimensional coordination in building - Modular values]

B-02354 (62) Koordynacja wymiarowa w budownictwie. Zasady koordynacji modularnej i wymiarowania. (obow. od 1.8.63 r.)
[Dimensional coordination in building - Principles of modular coordination and of dimensioning]

B-02355 (62) Koordynacja wymiarowa w budownictwie. Tolerancje wymiarów elementów budowlanych. Określenia, klasy dokładności i metody sprawdzania przy odbiorze (obow 1.12.63 r.)
[Dimensional coordination in building - Tolerances of dimensions of prefabricates - Definitions, classes of accuracy, and methods of acceptance control]

B-02356°(62) Koordynacja wymiarowa w budownictwie. Tolerancje wymiarów elementów budowlanych z betonów. (obow. 1.12.63 r.)
[Dimensional coordination in building - Tolerances of dimensions of concrete building components]

B-02358 (62) Koordynacja wymiarowa w bodownictwie. Oznaczenia tolerancji wymiarów elementów i tolerancji położenia elementów na rysunkach (projekt PN)
[Dimensional coordination in building - Tolerances of dimensions and location of components - Designation on drawings]

Grupa VII 30. Klasyfikacja, nomenklatura i normy ogólne
[Group VII 30. Classification, terminology and general standards]

B-91002 (66) Stolarka budowlana. Okna i drzwi balkonowe. Zasadi ustalania wymiarów skoordynowanych modularnie. (obow. 1.1.76 r.)
[Joinery in building - Balcony windows and door casements - Principles for establishment of modular dimensions]

B-91003 (67) Stolarka budowlana. Drzwi. Zasady ustalania wymiarów skoordynowanych modularnie. (obow. 1.1.76 r.)
[Joinery in building - Doors - Principles for establishment of modular dimensions]

B-91004 (67) Budownictwo. Meble do wbudowania. Zasady wymiarowania modularnego. (obow. 1.1.68 r.)
[Building - Built-in fitments - Principles of modular dimensioning]

Part 6.6 ROMANIA

Institutul Român de Standardizare [IRS]
Căsuta Postală 63-87
Bucarest 1
Romania

Information Sources: Indicatorul Standardelor de Stat 1977;
NBS Collection of National/International Standards

Romanian Standards [STAS] are issued in the Romanian language, with subtitles in English, French, and Russian.

The following standards deal with modular coordination and tolerances in building (Coordinarea modulara si tolerante si constructii):

8530/1-70 Coordenarea modulară în construcţii - Terminologie (5 pages A4) [Înlocuieşte STAS 6538-62]
[Modular co-ordination in building construction - Terminology]
(Replaces STAS 6538-62)
The revision of the standard resulted as a consequence of international activity, and this "Terminology' corresponds to ISO 1791.

8530/2-76 Coordenarea modulară în construcţii - Principii şi reguli de proiectare [Înlocuieşte STAS 8530/2-70, Modulul de bază]
[Modular co-ordination in building construction - Principles and rules of design]

8530/3-70 Coordenarea modulară în construcţii - Multimoduli şi dimensiuni modulare (4 pages A4)
[Modular co-ordination in building construction - Multimodules and modular dimensions]
Provisions of standard correspond to ISO 1040 and ISO 1790.

5721-76 Spaţii minime pentru amplasarea mobilierului în clădiri de locuit - Dimensiuni [Înlocuieşte STAS 5721-68]
[Minimum spaces for the placement of furniture in buildings - Dimensions]

1686-70 Coordenarea modulară în constructii - Deschideri, travee şi înălţimi pentru hale industriale (6 pages A4) [Înlocuieşte STAS 1686-52]
[Modular co-ordination in building constructions - Openings, spans and heights for industrial buildings]

4582-70 Coordenarea modulară în construcţii - Goluri pentru uşi şi ferestre - Condiţii generale (4 pages A4) [Înlocuieşte STAS 4582 -56]
[Modular co-ordination in building constructions - Openings for doors and windows - General requirements]

4670-74 Modularea construcţiilor - Goluri pentru uşile şi ferestrele clădirilor de locuit şi social-culturale (5 pages A4)
[Înlocuieşte STAS 4670-66]
[Modular co-ordination in buildings - Openings for doors and windows of residential and social and cultural buildings]

4671-74 Modularea construcţiilor - Goluri pentru uşile şi ferestrele clădirilor industriale (4 pages A4) [Înlocuieşte STAS 4671-67 si STAS 1760-56]
[Modular co-ordination in buildings - Openings for doors and windows of industrial buildings]
Dimensions of openings correspond to ISO 1040 and ISO 2776.

8226-68 Modulare construcţiilor - Goluri pentru uşile, porţile şi ferestrele clădirilor agrozootehnice (2 pages A4)

8381-69 Construcţii agrozootehnice - Deschideri şi travee - Dimensiuni (2 pages A4)
[Agricultural constructions - Openings and spans - Dimensions]

10579-76 Rosturi la faţadele clădirilor executate cu panouri mari prefabricate - Terminologie şi clasificare

7009-70 Construcţii civile, industriale şi agricole - Sistemul ISO de toleranţe în construcţii - Terminologie (8 pages A4)
[Înlocuieşte STAS 7009-64]
[Civil, industrial and farm constructions - System of tolerances for building construction - Vocabulary]
Corresponds integrally to ISO 1803.

8600-70 Toleranţe în construcţii - Sistem de toleranţe dimensionale (5 pages A4)
[Tolerances in constructions - System of dimensional tolerances]
Corresponds partially to CMEA Recommendation 255-66.

10265-75 Toleranţe în construcţii - Calitatea suprafeţelor finisate - Termeni şi noţiuni de bază

10265/1-76 Toleranţe în construcţii - Toleranţe la suprafeţele din beton aparent

USSR State Committee for Standards [GOST]
(Gosudarstvennyj Komitet SSSR)
Leninsky Prospekt 9
Moskva 117049
USSR / СССР

Information Source: NBS Collection of National/International Standards;
United Nations, Economic Commission for Europe [ECE]
(Publication: Dimensional Co-ordination in Building - Current Trends and Policies in ECE Countries (New York, 1974)

The following information has been extracted from page 32, of United Nations publication ECE/HBP/6 (1974), "Dimensional co-ordination in building - Current trends and policies in ECE countries," in the absence of more up-to-date information from the USSR:

USSR

The modular system for the co-ordination of dimensions in building is mandatory in the USSR. It is governed by the *Construction Norms and Regulations* approved by the State Construction Committee of the USSR, which have the force of law. The relevant chapters of the *Construction Norms and Regulations* in force at the present time are the following:

II-A.4-62 "The Unified modular system in the building industry. Basic rules of design";

I-A.3-62 "Application of the unified modular system to the dimensioning of prefabricated structural components and products".

The norms for the modular system are further defined in the following:

"Instructions for the application of the modular system and for the standardization of volumetric planning parameters and structural components for residential and public buildings", Moscow, 1971;

"Instructions for the architectural design and modular co-ordination of components of box-unit buildings", Moscow, 1970;

"Basic rules concerning unification of the volumetric planning and structural design of industrial buildings", SN-223-62, Moscow, 1962.

The following USSR Standards [GOST], issued in Russian with subtitles in English, deal with a "System of ensuring geometrical accuracy in construction (СИСТЕМА ОБЕСПЕЧЕНИЯ ГЕОМЕТРИЧЕСКОЙ ТОЧНОСТИ В СТРОИТЕЛЬСТВЕ):

ГОСТ 21778–76 СИСТЕМА ОБЕСПЕЧЕНИЯ ГЕОМЕТРИЧЕСКОЙ ТОЧНОСТИ В СТРОИТЕЛЬСТВЕ
[GOST 21778 - 76] ОСНОВНЫЕ ПОЛОЖЕНИЯ (9 pages 146 x 214 mm)
(Sistema obespecheniya geometricheskoy tochnosti v stroitel'stve - Osnovnye polozheniya)
[System of ensuring geometrical accuracy in construction - Main principles]

ГОСТ 21779–76 СИСТЕМА ОБЕСПЕЧЕНИЯ ГЕОМЕТРИЧЕСКОЙ ТОЧНОСТИ В СТРОИТЕЛЬСТВЕ
[GOST 21779 - 76] ТЕХНОЛОГИЧЕСКИЕ ДОПУСКИ ГЕОМЕТРИЧЕСКИХ ПАРАМЕТРОВ (11 pages)
(Sistema obespecheniya geometricheskoy tochnosti v stroitel'stve - Tekhnologicheskie dopuski geometricheskikh parametrov)
[System of ensuring geometrical accuracy in construction - Manufacturing and assembly tolerances of geometrical parameters]

ГОСТ 21780–76 СИСТЕМА ОБЕСПЕЧЕНИЯ ГЕОМЕТРИЧЕСКОЙ ТОЧНОСТИ В СТРОИТЕЛЬСТВЕ
[GOST 21780 - 76] ОБЩИЕ ПРАВИЛА РАСЧЕТА ТОЧНОСТИ (9 pages 146 x 214 mm)
(Sistema obespecheniya geometricheskoy tochnosti v stroitel'stve - Obshchie pravila rascheta tochnosti)
[System of ensuring geometrical accuracy in construction - Common principles of inaccuracy claculation]

ГОСТ 23615–79 СИСТЕМА ОБЕСПЕЧЕНИЯ ГЕОМЕТРИЧЕСКОЙ ТОЧНОСТИ В СТРОИТЕЛЬСТВЕ
[GOST 23615 - 79]* СТАТИСТИЧЕСКИЙ АНАЛИЗ ТОЧНОСТИ (19 pages 146 x 214 mm)
(Sistema obespecheniya geometricheskoy tochnosti v stroitel'stve - Statisticheskiy analiz tochnosti)
[System of ensuring geometrical accuracy in construction - Statistical analysis of accuracy]

ГОСТ 23616–79 СИСТЕМА ОБЕСПЕЧЕНИЯ ГЕОМЕТРИЧЕСКОЙ ТОЧНОСТИ В СТРОИТЕЛЬСТВЕ
[GOST 23616 - 79]* ОБЩИЕ ПРАВИЛА КОНТРОЛЯ ТОЧНОСТИ (10 pages 146 x 214 mm)
(Sistema obespecheniya geometricheskoy tochnosti v stroitel'stve - Obshchie pravila kontrolya tochnosti]
(System of ensuring geometrical accuracy in construction - General rules for control of accuracy]

**bound together*

Part 6.8 YUGOSLAVIA

Jugoslovenski zavod za Standardizaciju [JZS]
Slobodana Penezića-Krcuna br. 35
Pošt. Pregr. 933
11000 Beograd
Yugoslavia

Information Source: 1978 JUS Katalog jugoslovenskih standarda; and, dodatak katalogu jugoslovenskih standarda za 1978. Godinu.

The following Yugoslav standards deal with modular coordination:

U.A9.001-1957 Jedinstvena modularna koordinacija u zgradarstvu

U.A9.004-1967 Spratna visina stambenih zgrada. Komponente i mere

Part 7.1 EGYPT

Egyptian Organization for Standardization [EOS]
2, Latin America Street
Garden City
Cairo
Arab Republic of Egypt

Information Source: Reply from Chairman, Egyptian Organization for Standardization

The standards referenced below are available only in Arabic.

ES 1292/1976 Concrete bricks and blocks

ES 140/1978 Cellular concrete building units

ES 633/1978 Asbestos cement flat and corrugated sheets

Part 7.2 IRAQ

Iraqui Organization for Standards [IOS]
Planning Board
P.O. Box 13032
Baghdad
Iraq

Information Source: Yearbook of Iraqui Standards 1978, published in English by the IOS Technical Service Department

The following Iraqi Standards deal with modular coordination in building:

IOS 766 -1977 Modular coordination - Vocabulary

IOS 767 -1977 Modular coordination - Basic module

IOS 768 -1977 Modular coordination - Coordination of door sets - External and internal

Part 7.3 ISRAEL

The Standards Institution of Israel [SII]
42, University Street
Tel Aviv 69977
Israel

Information Sources: Reply from Director, Standardization Division, SII; NBS Collection of International/National Standards.

Original standards are issued in Hebrew, but English translations are available.

Israeli Standards for Modular Co-ordination in Building

SI 617	(1978)	Modular co-ordination in building: Vocabulary and principles [Replaces SI 617 (1966)]
SI 617-1	(1974)	Modular co-ordination: Vertical dimensions in normal storeys of high and multistorey residential buildings [Revision of this standard is in preparation]
SI 617-2	(1974)	Modular co-ordination: Positioning of building parts and components: Design rules for walls, floors and partitions
SI 617-3	(1979)	Modular co-ordination: Dimensions of staircases
SI 617-4	(1979)	Modular co-ordination: Dimensions of precast concrete floor slab components

Israeli Standards where Modular Co-ordination in Building is Used

SI 5	(1979)	Concrete blocks for walls
SI 6	(1979)	Concrete flooring tiles
SI 23.1-3	(1979)	Flush wood doors
SI 23.4-9	(1964)	Glazed wood doors [amended 1971]
SI 35	(1964)	Wood door frames [amended 1971]
SI 37	(1978)	Plain plywood
SI 42	(1976)	Precast reinforced concrete steps
SI 77	(1960)	Wood windows, vertically hinged [amended 1971]
SI 568	(1965)	Wooden sliding doors [amended 1971]
SI 612	(1966)	Wooden windows, horizontally sliding, leaf on leaf [amended 1971]
SI 613	(1966)	Glazed wooden single leaf door, for veranda, sliding on the wall [amended 1971]
SI 1068	(1979)	Aluminium windows

Part 7.4 JAPAN

Japanese Industrial Standards Committee [JISC]
c/o Standards Department
Agency of Industrial Science and Technology
Ministry of International Trade and Industry
3-1, Kasumigaseki 1, Chiyodaku
Tokyo
Japan

Technical Committee: Architecture Council, JISC

Information Sources: Reply from Director, International Standards Office, Standards Department, AIST/MITI;
JIS Yearbook 1979 [English Edition]; and,
NBS Collection of National/International Standards.

Japanese Industrial Standards [JIS] are issued in Japanese with English subtitles. A large number of JISC standards have been translated into English, and these are marked with an asterisk (*) below.

The following standards deal with modular coordination in building:

JIS A 0001-1963 Building module (*) (3 pages A4)

JIS A 0002-1966 Glossary of terms used in building module

JIS A 0003-1963 Basic tolerances for building components (*)

JIS A 0004-1964 Principles of modular co-ordination in buildings

JIS A 0005-1966 Standard nominal size of opening components for buildings

JIS A 0006-1966 Standard size of boards for buildings

JIS A 0007-1967 Standard nominal size of steel framed wall components for buildings

JIS A 0008-1967 Standard nominal size of steel framed roof components for buildings

JIS A 0009-1970 Nominal dimension of movable partition components for buildings

JIS A 0012-1976 Modular co-ordinating sizes of sanitary units for dwellings

JIS A 0013-1976 Modular co-ordinating sizes of kitchen units for dwellings

JIS A 0014-1976 Modular co-ordinating sizes of air conditioning unit for dwellings

JIS A 0015-1976 Modular co-ordinating sizes of piping unit for dwellings

JIS A 0016-1979 Modular coordination - Coordinating size of opening for built-in appliances in storage furniture

JIS A 4410-1976 Sanitary unit for dwellings

JIS A 4411-1976 Kitchen unit for dwellings

JIS A 4412-1976 Air-conditioning unit for dwellings

JIS A 4413-1976 Piping unit for dwellings

JIS A 4414-1977 Inter-unit for dwellings

JIS A 4415-1977 Storage furniture for dwellings

JIS A 6501-1975 Building components (Concrete panel for wall)

JIS A 6503-1975 Building components (Steel panel for wall) (*)
(16 pages A4) *Contains modular dimensions of components*

JIS A 6504-1975 Building components (Wood panel for wall)

JIS A 6505-1978 Building components (Concrete panel for floor)

JIS A 6506-1975 Building components (Wood panel for floor)

JIS A 6507-1975 Building components (Steel panel for floor) (*)
(13 pages A4) *Contains modular dimensions of components*

JIS A 6508-1975 Building components (Concrete panel for roof) (*)
(14 pages A4) *Contains modular dimensions of components*

JIS A 6509-1975 Building components (Wood panel for roof)

JIS A 6510-1975 Building components (Steel panel for roof) (*)
(14 pages A4) *Contains modular dimensions of components*

Other Japanese Industrial Standards which include references to modular dimensions:

JIS A 4301-1970 Size of car and hoistway of elevators (*)
(6 pages A4)

JIS A 4702-1977 Steel and aluminium doors

JIS A 4706-1979 Steel and aluminium windows (Sliding windows)

JIS A 4707-1976 Steel and aluminium windows (Projected windows)

JIS A 4708-1976 Sound insulation windows

JIS A 5207-1963 Sanitary wares (*)

JIS A 5209-1967 Clay tiles (*) (23 pages A4)

JIS A 5210-1975 Hollow clay building blocks

JIS A 5211-1977 Clay dry closets and urinals

JIS A 5304-1967 Sidewalk concrete flags (*)

JIS A 5401-1978 Cement roof tiles

JIS A 5402-1976 Pressed cement roof tiles (*)

JIS A 5406-1972 Hollow concrete blocks (*) (8 pages A4)

JIS A 5413-1966 Asbestos-cement perlite board (*)

JIS A 5414-1967 Pulp cement boards (*)

JIS A 5415-1971 Terrazzo tiles (*) (7 pages A4)

JIS A 5418-1973 Autoclaved asbestos-cement calcium silicate boards (*)

JIS A 5705-1966 PVC floor tile (*) (8 pages A4)

JIS A 5902-1975 Tatami

JIS A 6601-1979 Metal balcony and balcony components for dwellings

JIS S 1010-1978 Standard size of writing desks for office

JIS S 1021-1977 School desks and chairs (Class room)

JIS S 1041-1975 Tables for conference (Office furniture)

JIS S 1051-1978 Tables for reception (Office furniture)

JIS S 1061-1975 Student desks for domestic use

JIS S 1101-1976 Nominal dimensions of domestic beds

JIS S 1104-1979 Bunk beds for domestic use

Part 7.5 Republic of KOREA

Korean Bureau of Standards [KBS]
Industrial Advancement Administration
Yongdeungpo-Dong
Yongdeungpo-Ku
Seoul
Republic of Korea

Information Sources: Korean Industrial Standards [English Edition 1977]; NBS Collection of National/International Standards.

Korean Standards are issued in Korean, with English subtitles. Paper sizes vary, but are generally 190 x 260 mm. English translations exist for the Korean Standards marked with an asterisk (*).

The following Korean Standards deal with modular co-ordination in building and modular sizes of building components:

F 1503 - 1973 Principles of modular co-ordination in buildings (9 pages)

F 1505 - 1971 Basic tolerances for building components (*) (2 pages)

F 1506 - 1971 Dimensions of elevator and passage (13 pages)

F 1508 - 1971 Terminology for modular co-ordination in building (3 pages) *Includes major terms in English*

F 1509 - 1971 Dimensioning of modular components for building (4 pages)

F 1510 - 1971 Basic module for modular co-ordination in building (1 page)

F 1511 - 1971 Preferred horizontal dimensions in building (2 pages)

F 1512 - 1971 Multimodule for modular co-ordination in building (2 pages)

F 1513 - 1973 Standard nominal dimension of wall components for building (4 pages)

F 1514 - 1973 Standard nominal dimension of floor components for building (2 pages)

F 1515 - 1973 Standard nominal dimension of wall opening for window and door components (5 pages)

F 1516 - 1973 Standard nominal size of opening components for building (9 pages)

F 1517 - 1973 Nominal dimension of movable partition components for buildings (12 pages)

F 1518 - 1973 Standard size of boards for buildings (2 pages)

Part 7.5 Republic of KOREA - (Continued)

Korean Standards which include products in modular dimensions:

F 3201 - 1976 Insulation fiberboards (*)

F 3202 - 1976 Semi-hard fiberboards (*)

F 3203 - 1976 Hard fiberboards (*)

Part 7.6 TAIWAN (Republic of China)

National Bureau of Standards
Ministry of Economic Affairs
61-1, Sung-Chiang Road
Taipei
Taiwan 104
Republic of China

Technical Committee: Technical Committee on Civil Engineering and Architecture
Secretariat: Department of Standards-Writing of National Bureau of Standards

Information Sources: Reply from Director, Department of Standards-Writing, National Bureau of Standards, Ministry of Economic Affairs, Republic of China;
Chinese National Standards Catalogue 1979; and,
NBS Collection of National/International Standards.

Chinese National Standards [CNS] are issued in Chinese with subtitles in English. The standards marked (r) are in the process of being revised.

The following Chinese National Standards deal with modular co-ordination in building and modular sizes of building components:

CNS 2927 [A1010-11,1968] Revised 1973	Basis for coordination of dimensions of building materials with equipment (r)
CNS 3537 [A1012-11,1973]	Module rules for buildings (Planning modules) (1 page A4) (r)
CNS 3538 [A1013-2,1975]	Preferred horizontal dimensions for industrial buildings (5 pages A4) (r)
CNS 3539 [A1014-2,1975]	General rules for buildings (Application of tolerances (6 pages A4) (r)
CNS 4112 [A1015-3,1978]	Building module (2 pages A4)
CNS 4113 [A1016-6,1977]	Glossary of terms used in building module (3 pages A4) *(Also shows terms in English)*
CNS 4114 [A1017-6,1977]	Basic tolerances for building components (2 pages A4)
CNS 4115 [A1018-3,1978]	Principle of modular coordination in buildings (5 pages A4)
CNS 4347 [A1019-5,1978]	Standard nominal size of opening components for buildings (9 pages A4)
CNS 4348 [A1020-5,1978]	Standard size of boards for buildings (2 pages A4)
CNS 4439 [A1021-7,1978]	Modular coordinating sizes of sanitary unit for dwellings (5 pages A4)

CNS 4440 [A1022-7,1978]	Modular coordinating sizes of kitchen unit for dwellings (5 pages A4)
CNS 4769 [A1023-4,1979]	Modular coordinating sizes of air-conditioning unit for dwellings (7 pages A4)
CNS 4770 [A1024-4,1979]	Modular coordinating sizes of piping unit for dwellings (4 pages A4)

Chinese National Standards which include modular building components or materials:

CNS 3092 [A2044-12,1975]	Aluminium windows (Single and double sliding) (4 pages A4)
CNS 3319 [R2065-1,1972]*	Common building bricks (Modular coordination)
CNS 3802 [A2048-8,1975]	Pulp cement board (2 pages A4)
CNS 3803 [A2049-9,1975]	Terrazzo tiles (2 pages A4)
CNS 4458 [A2061-4,1979]	Gypsum boards
CNS 4460 [A2062-4,1979]	Decorated gypsum boards
CNS 4643 [A2063-11,1978]	Gypsum lath boards
CNS 4965 [A2070-9,1979]	Perforated gypsum boards for acoustic use

Part 7.7 THAILAND

Thai Industrial Standards Institute [TISI]
Ministry of Industry
Rama VI Street
Bangkok 4
Thailand

Technical Committee: TISI/TC 55, Construction Materials
Secretariat: Thai Industrial Standards Institute

Information Sources: Reply from Secretary-General, Thai Industrial Standards Institute; Thai Standards 1979 Catalogue; NBS Collection of International/National Standards

Thai Industrial Standards are issued in the Thai language. English editions are available for standards marked with an asterisk (*).

The following Thai Standards include modular and preferred dimensions of building products:

TIS 12-1971* Asbestos-cement flat sheets (22 pages A5)

TIS 18-1971* Asbestos-cement corrugated sheets [Amendment No.1, December 1974] (pages A5)

TIS 36-1973* Wall tile (20 pages A5)

TIS 37-1973* Floor tile (20 pages A5)

TIS 38-1973* Mosaic tile (14 pages A5)

TIS 57-1973* Hollow load-bearing concrete masonry units (pages A5)

TIS 58-1973* Hollow non-load-bearing concrete masonry units (14 pages A5)

TIS 59-1973* Concrete building brick (14 pages A5)

TIS 60-1973* Solid load-bearing concrete masonry units (pages A5)

TIS 77-1974 Building bricks (15 pages A5)

TIS 79-1974 Asbestos-cement asymmetrical section corrugated sheet (20 pages A5)

TIS 102-1974 Structural clay load-bearing tile (11 pages A5)

TIS 103-1974 Structural clay non-load-bearing tile (7 pages A5)

TIS 134-1975 Mosaic parquet panels (15 pages A5)

TIS 164-1975 Particle boards: medium density (19 pages A5)

TIS 167-1976 Clacium silicate face bricks or sand-lime bricks (7 pages A5)

TIS 168-1976 Facing bricks (14 pages A5)

TIS 169-1976 Structural clay facing tiles (19 pages A5)

TIS 178-1976 Plywood (18 pages A5) (Continued)

TIS 180-1976 Hardboard (11 pages A5)

TIS 192-1976 Wooden flush door (12 pages A5)

TIS 219-1977 Gypsum plasterboards (8 pages A5)

The following document was issued before 1970 in Thai and English by the Centre for Thai National Standard Specifications, Applied Scientific Research Corporation of Thailand, 196 Phahonyothin Road, Bang Khen, Bangkok 9, Thailand:

Thai National Standard Specification 6:2512 (1969) Modular Coordination in Building--Basic Module (2 pages)

Part 8 UNITED STATES OF AMERICA (U.S.A.)

American National Standards Institute [ANSI]
1430 Broadway
New York, N.Y. 10018

Technical Committee: E06-62, "Coordination of Dimensions for Building Materials and Systems,"
American Society for Testing and Materials [ASTM]
1916 Race Street, Philadelphia, Pa. 19103

Background

Work on American Standards for the coordination of dimensions of building materials and equipment (Project A62) commenced in 1939, under the auspices of the American Standards Association (ASA).
In 1945, the first of a series of standards dealing with dimensional coordination was published in foot-inch units: "American Standard Basis for the Coordination of Dimensions of Building Materials and Equipment," under the designation A62.1-1945 (Revised 1957).
Subsequently, the A.62 Series of standards was expanded to a total of 8 national standards by 1971. The Basic Module adopted was 4 inches, and it was denoted by the suffix M. In A62.5-1968, the concept of a Systems Module of 60M (20'-0") was introduced.

In 1974, the development of standards for the coordination of dimensions was transferred to the American Society for Testing and Materials (ASTM), and a new Subcommittee E06.62, "Coordination of Dimensions for Building Materials and Systems," was formed within the main Committee E06, "Performance of Building Constructions," to continue the development and revision of standards for dimensional coordination.

One standard has been issued under the jurisdiction of ASTM Committee E06, designated ANSI/ASTM E577 - 76 (Published January 1977), "Standard for Dimensional Coordination of Rectilinear Building Parts and Systems." This standard introduces the new concept of a basic incremental dimension or unit of size, U, to be applied as the standard increment and as the spacing of the standard grid. In the standard, U is assigned the value of 4 inches (101.6 mm) in U.S. customary units, and 100 mm in SI units. Preferences are expressed in terms of U only. The standard is currently under review.

A further standard, "Dimensional Coordination of Structural Clay Units, Concrete Masonry Units, and Clay Flue Linings," is under development to replace ANSI A62.2-1945, ANSI A62.3-1946, and ANSI A62.4-1947. It is proposed that the new standard will be issued as a companion standard in separate metric and U.S. customary versions, using a basic module of 100 mm and 4 inches, respectively.

Standards on Dimensional Coordination in Building [U.S. customary units]:

ANSI A62.1-1957 American Standard Basis for the Coordination of Dimensions of Building Materials and Systems [Revision of ASA A62.1-1945] (6 pages 215 x 280 mm)

ANSI A62.2-1945 American Standard Basis for the Coordination of Masonry (6 pages 215 x 280 mm)

ANSI A62.3-1946 American Standard Sizes of Clay and Concrete Modular Masonry Units (14 pages 215 x 280 mm)

ANSI A62.4-1947 American Standard Sizes of Clay Flue Linings (8 pages 215 x 280 mm)

ANSI A62.5-1968 USA Standard Basis for the Horizontal Dimensioning of Coordinated Building Components and Systems (9 pages 215 x 280 mm)
Prepared during the existence of the United States of America Standards Institute, which succeeded ASA (the American Standards Association), and was renamed ANSI (American National Standards Institute) in October 1969.

ANSI A62.6-1969 American National Standard Classification for Properties and Performances of Coordinated Building Components and Systems (12 pages 215 x 280 mm)

ANSI A62.7-1969 American National Standard Basis for the Vertical Dimensioning of Coordinated Building Components and Systems (12 pages 215 x 280 mm)

ANSI A62.8-1971 American National Standard Numerical Designation of Modular Grid Coordinates (14 pages 215 x 280 mm)

Hybrid Standard for Use with U.S. Customary or Metric (SI) Units:

ANSI/ASTM E577 - 76 Standard for Dimensional Coordination of Rectilinear Building Parts and Systems (4 pages 152 x 228 mm)
The standard covers dimensional coordination of the fabrication of rectilinear building parts and systems. While recommending a minimum number of sizes, it permits a reasonable number of design and dimensioning alternatives with minimum field adjustment during installation.
Specifically covered are: standard coordinated sizes of rectilinear building parts; the basis for the dimensional coordination of building parts and systems in the design of buildings; and, preferred horizontal and vertical dimensions for building parts and the coordination of systems.
It uses a basic incremental dimension (unit dimension), designated U; with the value 100 mm for dimensional coordination in SI units, and 4 in. for dimensional coordination in U.S. customary units.
The standard includes definitions of terms.

Part 9 THE RELATIONSHIP OF NATIONAL STANDARDS TO INTERNATIONAL (ISO) STANDARDS: VOTING BY ISO NATIONAL MEMBER BODIES, DEGREE OF ADOPTION OF ISO STANDARDS, AND REFERENCING OF ISO STANDARDS IN NATIONAL STANDARDS.

General

This Part addresses the impact of international [ISO] standards and recommendations on national standards dealing with modular and dimensional coordination in building and associated subjects.

A matrix was included in NBSIR 79-1791, to show in graphic form the voting results of ISO national member bodies on the 15 main ISO standards in this subject area; the degree of adoption of, or concurrence with, ISO standards in national standards; and, the extent of referencing of ISO standards in national standards published or revised subsequently.

9.1 Voting on ISO Standards

The Foreword to each ISO standard provides a complete listing of the ballot result prior to the publication of the standard, by showing all approvals as well as disapprovals on technical grounds by member nations. [In the case of ISO 1040-1973, two previous recommendations, R 1040/I-1969 and R 1040/II-1970, were combined.]

The matrix in Figure 9.1 indicates that a total of 44 member nations recorded votes on one or more of the 15 ISO standards listed, with 7 nations voting on all. In the matrix, approvals are indicated by a lowercase a in the first column of each appropriate box. Disapprovals on technical grounds are indicated by a lowercase d.

The tabulation below provides a tally of all votes recorded by member nations:

Australia: 8 a	Greece: 3 a	Peru: 5 a
Austria: 13 a, 1 d	Hungary: 14 a	Poland: 10 a
Belgium: 10 a, 5 d	India: 11 a	Portugal: 7 a
Brazil: 9 a	Iran: 9 a	Romania: 13 a
Bulgaria: 2 a	Ireland: 5 a, 1 d	South Africa: 13 a
Canada: 9 a, 2 d	Israel: 14 a	Spain: 14 a
Chile: 3 a	Italy: 13 a	Sweden: 14 a, 1 d
Cuba: 3 a	Japan: 4 a, 1 d	Switzerland: 12 a, 3 d
Czechoslow.: 2 a	Korea, DPR: 2 a	Thailand: 9 a
Denmark: 14 a, 1 d	Korea, Rep.: 9 a	Turkey: 14 a
Egypt: 11 a	Mexico: 4 a	United Kingdom: 10 a, 5 d
Ethiopia: 1 a	Netherlands: 12 a, 3 d	U.S.A.: 4 a, 1 d
Finland: 9 a, 5 d	New Zealand: 6 a, 2 d	U.S.S.R.: 9 a, 2 d
France: 12 a, 3 d	Norway: 14 a	Yugoslavia: 5 a
Germany: 12 a, 3 d	Pakistan: 1 a	Total Votes: 366 a, 41 d

Even though a national member body of ISO may have registered approval of a particular ISO standard, this does not necessarily mean that such a standard has been or will be adopted in full or in part at the national level, or will even be considered for adoption.

However, it generally indicates that the appropriate national standards committee has examined the contents of the ISO document and expressed a formal judgment as to the acceptability of that contents. In a number of instances, national standards predate the corresponding ISO standard and may or may not be in conflict with the ISO recommendations.

In time, and with revisions to or the issue of new national standards on modular or dimensional coordination and associated subjects, a wider acceptance of the ISO concepts, format, and technical contents can be expected.

9.2 Adoption of ISO Standards and Recommendations, or Concurrence

In national standards that have been issued since the publication of corresponding ISO standards or recommendations, it is possible to assess the degree of adoption of international proposals. This may range from negligible in some instances, to partial or substantial in many cases, and to complete adoption in some instances; for example, in the national standards of Cyprus.

The matrix on page 136 (Figure 9.1) has been developed to indicate, by means of a critical judgment at the national standards level, the degree of adoption of ISO standards, or concurrence with such standards where national standards predate ISO documents. An appropriate question was included in the questionnaire sent out with a copy of the predecessor document NBSIR 79-1791.

The following key is used in the second column of the appropriate box in the matrix:

A = Complete adoption of ISO standard in national standard(s)

B = Substantial adoption of ISO standard in national standard(s), with some addition or deletion of material

C = Partial adoption of ISO standard in national standard(s), with considerable addition of material

D = National standard(s) do not refer to ISO standard, but are NOT in conflict

E = National standard(s) are in conflict with ISO standard or recommendation.

Replies to the matrix in NBSIR 79-1791 were received from 20 national standards organizations, and these are incorporated in Figure 9.1. The reply from the United Kingdom [British Standards Institution] indicates that the implementation summary poses problems because in almost all cases the equivalent BSI Standard predated the ISO standard and, thus, neither "adopts" it or refers to it. The British approach, outlined on page 758 of the BSI Yearbook, has adopted a code of three alternatives:

$\neq$ = BS and ISO standards are technically equivalent

$\pm$ = BS and ISO standards are related [addition or deletion of material]

= = BS and ISO standards are identical.

In the British approach, no account is taken of which standard was published first, so that the question of "adoption" does not arise.

The purpose of the classification system used in this publication is not to point to any "conflict" between national standards and ISO standards, but to indicate the trend towards the increasing adoption of international recommendations at the national level or their amalgamation with traditional and longstanding national proposals.

9.3 Referencing of ISO Standards in National Standards

Where an international [ISO] standard is referenced in the text or the explanations to a national standard or group of standards on the same subject matter, this has been indicated by means of a capital R in the third column of the appropriate box in the matrix.

[R = ISO standard is referenced or mentioned in national standard(s).]

Such referencing is indicative of the recognition of the existence of international [ISO] standards in the subject area, even though their content may not be adopted in full or in part by the national standard(s).

9.4 Revision of ISO Standards

Alike most national standards, ISO standards are subject to periodic review and/or revision. Part 1 of this publication contains information on ISO Draft Proposals [DP] and Draft International Standards [DIS] in the subject area of modular coordination, tolerances, and joints in building, together with expected target dates for publication.

The following documents have an impact on the standards listed in the matrix:

DP 1803 - Revision of ISO 1803 - 1973 (Expected February 1981)

DIS 4190/1 - Passenger lift installations - Lifts of classes I, II, and III (expected May 1980)
**Note: The Italian national standards body (UNI) indicated in its reply on the matrix that it will adopt ISO 4190/1 upon publication--without modifications--as that standard would replace ISO 3571/1-1977.*

DIS 6510 - Building Construction - Modular coordination - Reference planes for horizontal controlling dimensions (expected August 1980)
This document is a revision of ISO R1790-1970.

Figure 9.1

MODULAR AND DIMENSIONAL COORDINATION IN BUILDING

MATRIX SHOWING THE VOTING BY MEMBER BODIES ON ISO STANDARDS, THE EXTENT OF CONCURRENCE WITH OR ADOPTION OF ISO STANDARDS, AND THE REFERENCING OF ISO STANDARDS IN NATIONAL STANDARDS.

Country	ISO STANDARDS AND RECOMMENDATIONS														
	1006	1040[1]	1789	R1790	1791	2776	2777	2848	3055	3571/1	3881	5731	5732	1803	2444
Albania [BSA]															
Algeria [INAPI]															
Australia [SAA]	D	aD	D	aD	D	aD	aD	aD	BR			aD	a	a	
Austria [ON]	a R	aa R	aD	aD	BR	aD	aD	aD	aBR	aD	a	dD	a	aBR	a
Bangladesh [BDSI]															
Belgium [IBN]	a	aa	a	a	a	a	a	d	d	a	a	d	d	a	d
Brazil [ABNT]		a	a	a	a					a		a	a	a	a
Bulgaria [DKC]									a						
Canada [SCC]	aD	a				a	a	aBR	d	d	a	a	a	BR	a
Chile [INN]	a	a					a								
China, P.R. [CAS]															
Colombia [ICONTEC]															
Cuba [NC]	a	a									a				
Cyprus [CYS]	AR							AR							
Czechoslowakia [CSN]	AR	AR	CR	CR	CR	a	B	CR	B		B	a		B	
Denmark [DS]	aB	aaC	aC	aC	aC	aC	a	aC	aC	aA	aD	d	aA	aC	a
Egypt [EOS]		a	a	a	a	a	a	a	a		a			a	a
Ethiopia [ESI]										a					
Finland [SFS]	aAR	daBR	aCR	dB	dBR	aB	a-	aAR	d-	dBR	a-	a-	a-	aBR	aBR
France [AFNOR]	a	aa	a	a	a	d	d	a	a	aBR	a	a	a	a	d
Germany, F.R. [DIN]	a	dd	d	d	a	a	a	a	a	a	a	a	a	a	a
Ghana [GSB]															
Greece [ELOT]	a	a												a	
Hungary [MSZH]	aA	aaA	aB	aA	aA	aB	aD	aA	aD	D	aD	aD	aD	aA	aA
India [ISI]	a	aa	a	a	a	a	a	a	a	a				a	a
Indonesia [YDNI]															
Iran [ISIRI]	a	aa	a	a	a						a	a	a	a	
Iraq [IOS]															
Ireland [IIRS]						a	a	a	a	d					a
Israel [SII]	aA	aaB	aC	aD	a	D	aC	aB	a	aE	aD	a	a	a	a
Italy [UNI]	aBR	aaB	aD	aB	aB	a-	-	aC	aB	a*	-	aA	aA	aB	a-
Ivory Coast [BIN]															
Jamaica [JBS]															
Japan [JISC]								a	d	a	a		a		
Kenya [KEBS]															
Korea, D.P.R. [CSK]	a	a													
Korea, Rep. of [KBS]	a	a	a	a	a						a	a	a	a	
Lebanon [LIBNOR]															
Libyan Arab Jamahiriya															
Malaysia [SIRIM]															
Mexico [DGN]									a		a	a	a		
Morocco [SNIMA]															
Netherlands [NNI]	aBR	aaCR	aD	aCR	aCR	d	d	aCR	aCR	a	a	aD	d	aD	a
New Zealand [SANZ]					a	a	B	a	d	a		a	a		d
Nigeria [NSO]															
Norway [NSF]	a	aa	a	a	a	a	a	a	a	a	a		a	a	a
Pakistan [PSI]									a						
Peru [ITINTEC]		a	aD	a	aC	D		B	B		C			a	
Philippines [PS]			B		B	B	B					B		B	B
Poland [PKNiM]	aB	aB			aB	aB	aB		aB	aB		aB	aB	aB	
Portugal [DGQ]		a	a	a	a	a				a				a	
Romania [IRS]	a R	aa R	a	a R	a R	a R	a	a	a			a	a	a R	a
Saudi Arabia [SASO]															
Singapore [SISIR]															
South Africa [SABS]	aB	aaB	aB	aB	aB	aB	aB	aB	aB		aB	aB		aB	aB
Spain [IRANOR]	a	aa	a	a	a	a	a		a	a	a	a	a	a	a
Sri Lanka [BCS]															
Sudan [SSD]															
Sweden [SIS]	aBR	aaBR	aC	aD	aBR	aC	aC	aBR	aBR	aBR	aB	aE	aBR	aBR	aBR
Switzerland [SNV]	aA	aaB	aD	aB	aB	aB	a-	aC	dE	aB	a-	dE	dE	aB	a-
Tanzania [TBS]															
Thailand [TISI]	aBR	aaBR	aBR	aBR	aA	aBR	aAR	aB	aBR	abst.				a	
Turkey [TSE]	aB	aaB	aB	aB	aB	aB	aB	aB	a-	-	a-	a-	a-	a-	a-
United Kingdom [BSI]	dC	ddC	aC	aC	aC	aC	aC	aC	dC	aC	aAR	a	d	aC	aC
U.S.A. [ANSI]		a	a	d	a									a	
U.S.S.R. [GOST]		a	a	a	a	a	a	a		d	d	a	a		
Venezuela [COVENIN]															
Viet Nam, S.R. [TCVN]															
Yugoslavia [JZS]	a	a							a	a	a				

[1] *ISO Standard 1040-1973 replaces two prior recommendations but not to separate voting.*

Key to Matrix: First Column: a = approval of ISO standard by a national member body
d = disapproval of ISO standard, on technical grounds, by a national member body

Second Column: A = adoption in full of ISO standard as national standard
B = substantial adoption of ISO standard in national standard(s), with some addition or deletion of material
C = partial adoption of ISO standard with considerable addition of material
D = national standard(s) do not refer to ISO standard, but are NOT in conflict
E = national standard(s) are in conflict with ISO standard or recommendation

Third Column: R = ISO standard is referenced in national standard(s)

Part 10 VOCABULARY OF MODULAR COORDINATION TERMS

At the international level, the International Organization for Standardization [ISO] has issued three international standards containing a vocabulary of modular coordination and related terms in English and French:

ISO 1791 - 1973	Modular Co-ordination - Vocabulary Coordination modulaire - Vocabulaire
ISO 1803 - 1973	Tolerances for building - Vocabulary Tolérances pour le bâtiment - Vocabulaire
ISO 2444 - 1974	Joints in building - Vocabulary Joints dans le bâtiment - Vocabulaire

The unification and harmonization of terminology--through agreed terms and vocabularies--represents a major step in the wider international application and compatibility of modular coordination. At this stage, English, French and Russian are the official ISO languages, although few ISO standards are as yet printed in Russian.

The listing in Appendix 3 shows the languages in which national standards of different nations are issued, indicating that, apart from English and French, the Spanish language is widely used in national standards. In addition, German, Italian, and Portuguese are used in standards issued by a number of countries.

To facilitate reference of national standards, ISO has recommended that English (and/or French) subtitles be shown in standards issued in other languages. This recommended practice is gaining wider acceptance and, in due course, should assist in the much wider dissemination of technical information. Under the provisions of ISONET, an international standards information system set up by ISO, member nations will provide a list of all national standards, preferably in English and French.

Translations of Standards

A number of countries--among them: Denmark, the Federal Republic of Germany, Finland, Israel, Japan, and Sweden--provide authorized or informal English translations of some of their standards dealing with modular coordination. This practice is especially useful where the national language uses alphabets or symbols other than the Roman alphabet.

Multi-lingual Standards

A number of countries issue national standards in more than one language, for example, Belgium (*French and Netherlandish)*, Canada *(English and French)*, South Africa *(English and Afrikaans)*, and Switzerland *(French, German, and Italian)*. These multi-lingual standards facilitate the wider understanding of the subject and provide a useful cross-reference.

Multi-lingual Vocabularies

A number of countries have issued national standards which set down terms used in modular coordination and associated subjects in several languages. Such documents could provide an excellent starting point for a multi-lingual vocabulary dealing with modular coordination in building.

The following multi-national or national standards deserve particular mention:

1. Modular Coordination in Building. Vocabulary [Nordic Countries]

   A cooperative effort by four Scandinavian countries to issue a common vocabulary in Danish, Finnish, Norwegian, Swedish, English and French, based upon ISO 1791-1973, with the deletion of some terms. According to the introduction, the Danish, Norwegian and Swedish versions are in accord, and the Finnish version is generally in agreement. However, the Norwegian Standard referenced, NS 1000, has not yet been revised in line with the multi-lingual vocabulary.

   The respective national standards and their titles are:

   Denmark: DS 1010.1-1975, Modulkoordinering for byggeriet. Terminologi. (Includes ISO 1791 in its entirety as an appendix.)

   Finland: SFS 3501-1975, Moduulijärjestely. Käsitteistö. Pohjoismainen.

   Sweden: SIS 05 01 00-1975, Modulkoordinering. Terminologi.

   Norway: NS 1000 - 1960 (To be revised)

2. Modular Coordination in Building. Terms and Definitions [Germany]

   DIN 18 000 Teil 2 - 1976 Modulordnung im Bauwesen - Begriffe

   The standard contains terms in German, English and French for 11 of the terms given in ISO 1791 - 1973, as well as definitions and illustrations of these terms.

3. Modular Coordination in Building. Terms and Definitions [Switzerland]

   SN 501 501 - 1978 Modulordnung im Hochbau - Begriffe

   Tri-lingual standard in French, German and Italian, containing terms used in modular coordination in building.

   (Supersedes SNV 501 501 - 1969 : Terminologie: Massordnungen, Modul-Ordnung, tri-lingual edition as well as English translations)

4. Modular Coordination in Building. Glossary [Greece]

   ΕΝΟ Ρ 01-001 - 1959 Η συσχετισμένη τυποποίησις των δομικών στοιχείων **Λεξιλόγιον**

   This early standard is now under review by ELOT. It consists entirely of a multi-lingual vocabulary of terms used in modular building, in French, English, German, Italian, and Greek. Only the Greek terms are shown in Greek letters.

5. Modular Coordination in Building. Terminology [Netherlands]

Although dating from the pre-ISO standards era, and largely superseded by NEN 2880 and NEN 2881, the Netherlands Standards (Norms) NEN 5701 - 1964 and NEN 5702 - 1965 contain a multi-lingual word list of terms in Dutch (Netherlandish), English, French, and German, for terms used in modular coordination and tolerances in building.

The titles of the Netherlands Standards are:

NEN 5701 - 1964 Modulaire coördinatie bij het bouwen. Terminologie.

NEN 5702 - 1965 Modulaire coördinatie bij het bouwen. Tolerantiestelsel. Begripsbepalingen.

Appendix 4 has been developed as a multi-lingual list of the principal terms used in modular coordination in building, including joints and tolerances. The Appendix includes all major languages, with the object to simplify the technical interpretation of terms and illustrations in the modular coordination standards of different nations.

Appendixes 4.1, 4.2, and 4.3 show 14 selected terms from ISO 1791-1973, "Modular co-ordination - Vocabulary," and Appendix 4.4 shows 6 selected terms from ISO 1803-1973, "Tolerances for building - Vocabulary."

The extensive information contained in Appendix 4 was made possible by the cooperation of most national standards organizations in providing the appropriate terms in their national languages.

APPENDIX 1

TECHNICAL COMMITTEE (TC) 59, BUILDING CONSTRUCTION, OF THE INTERNATIONAL ORGANIZATION FOR STANDARDIZATION (ISO):

SCOPE, SUBCOMMITTEES (SC) AND WORKING GROUPS (WG), AND SECRETARIATS

(Extract from ISO Memento 1980, pages 52 and 53)

TC 59 *(created 1947)* — **Building construction** — **AFNOR**

Chairman:
Mr. G. Blachère
France
(1980)

Standardization of:

1. Terminology in the construction and civil engineering industry.
2. General geometric requirements for buildings, building elements, components and products, including modular co-ordination and its basic principles, joints, tolerances and fits.
3. Other general performance requirements for buildings and building elements (user needs) including the co-ordination of these with performance requirements of building components and products to be used in the construction and civil engineering industry.

Are excluded:

- Bases for design of structures (TC 98)
- Particular geometric requirements and performance requirements of building components and products which are in the scope of separate ISO technical committees.

REFERENCE	TITLE AND SCOPE	SECRETARIAT/ CONVENOR (WG)
WG 1	**Physically handicapped**	SIS
SC 1	**Dimensional co-ordination**	SIS
WG 1	**Preferred sizes**	DS
WG 2	**Multimodules**	GOST
WG 5	**"Intermodular" dimensions**	DIN
WG 6	**Modular coordination of services and drainage**	SIS
WG 7	**Modular coordination of joints**	DS
SC 2	**Terminology, symbols and unification of language**	AFNOR
WG 1	**Terminology**	NSF
WG 2	**Co-ordination and harmonization of the definitions**	DIN
SC 3	**Functional/user requirements and performance in building construction**	BSI
WG 2	**Expression of climatic data for building design**	BSI
WG 3	**Whole building performance**	IBN
WG 4	**Performance evaluation**	NSF
SC 4	**Limits and fits in building construction**	DS
WG 1	**Tolerances in building. General principles**	BSI
WG 2	**Measurement procedures in building**	SIS
WG 3	**Tolerances in building. Collection and presentation of data**	DIN
WG 4	**Control and accuracy of measurement in building**	DIN
WG 5	**Tolerances in building. Inspection procedures**	DS
SC 5	**Joints**	AFNOR
SC 6	**Structure, external envelope, internal subdivision**	DIN
WG 1	**Structural components**	GOST
WG 2	**Partition components**	AFNOR
WG 3	**Façade components**	AFNOR
WG 4	**Stairs**	SIS
WG 5	**Components of roofs and roof coverings**	AFNOR
SC 7	**Equipment, services and drainage**	AFNOR
WG 2	**Bathrooms and toilets**	AFNOR
WG 4	**Accommodation ducts**	BSI
SC 8	**Jointing products**	DIN
SC 11	**Kitchen equipment**	SIS
WG 1	**Test methods and performance requirements**	BSI
WG 3	**Activity spaces**	SIS
	Liaison: ISO/TC 10, 77, 92, 98, 99, 105, 144, 152	

APPENDIX 2

PARTICIPATION BY MEMBER NATIONS IN ISO TECHNICAL DIVISION 3, "BUILDING," AND TECHNICAL COMMITTEE 59, "BUILDING CONSTRUCTION."

Information Source: ISO document, "PARTICIPATION in ISO Committees," (January 1980)

PARTICIPATION IN ISO TECHNICAL DIVISION (TD) 3, "BUILDING"

a. Active Participation [26 Nations]

Australia	Finland	Japan	U.S.A
Austria	France	Netherlands	U.S.S.R
Belgium	Germany, F.R.	Norway	
Brazil	Greece	Poland	
Canada	Hungary	Romania	
China, P.R.	India	Spain	
Czechoslowakia	Iran	Sweden	
Denmark	Italy	United Kingdom	

b. To Be Kept Informed of the Progress of the Work [12 Nations]

Chile	Israel	Peru	Switzerland
Cuba	Korea, D.P.R.	Portugal	Thailand
Ireland	New Zealand	South Africa	Yugoslavia

PARTICIPATION IN ISO TECHNICAL COMMITTEE (TC) 59, "BUILDING CONSTRUCTION"

a. Active Participation [32 Nations]

Australia	Czechoslowakia	Iran	Romania
Austria	Denmark	Israel	South Africa
Belgium	Ethiopia	Italy	Spain
Brazil	Finland	Japan	Sweden
Bulgaria	France, *Secretariat*	Korea, Rep. of	Switzerland
Canada	Germany, F.R.	Netherlands	Thailand
China, P.R.	Hungary	Norway	United Kingdom
Cyprus	India	Poland	U.S.S.R.

b. To Be Kept Informed of the Progress of the Work [23 Nations]

Chile	Indonesia	Mexico	Turkey
Colombia	Iraq	New Zealand	U.S.A.
Cuba	Ireland	Pakistan	Venezuela
Egypt, Arab Rep.	Ivory Coast	Portugal	Viet Nam, S.R.
Ghana	Korea, D.P.R.	Sri Lanka	Yugoslavia
Greece	Lebanon	Tanzania	

APPENDIX 3

LANGUAGES IN WHICH INTERNATIONAL, MULTI-NATIONAL AND NATIONAL STANDARDS ARE ISSUED

(NOTES: This listing is based on available information and is not necessarily complete.
Where standards are issued in more than one language, this is indicated in parentheses.
Where all or some modular coordination standards are available as English translations, this is indicated by an asterisk (*).)

International Standards (ISO)

English, French [some in Russian]

Multi-national Standards

COPANT - Spanish
ICAITI - Spanish
CMEA - *No information*

National Standards Issued in English

Australia
Bangladesh
Barbados
Canada *(French)*
Cyprus
Ghana
Hong Kong
India
Ireland *(Irish)*
Jamaica
Kenya
Liberia
Malawi
Malaysia
Mauritius
New Zealand
Nigeria
Pakistan
Philippines
Singapore
South Africa *(Afrikaans)*
Sri Lanka
Trinidad & Tobago
United Kingdom
U.S.A.
Zambia
Zimbabwe

National Standards Issued in French

Algeria
Belgium *(Netherlandish)*
Cameroon
Canada *(English)*
France
Ivory Coast
Madagascar
Morocco
Switzerland *(German, Italian)*
Tunisia

National Standards Issued in Spanish

Argentina
Bolivia
Chile
Colombia
Cuba
Ecuador
Mexico
Paraguay
Peru
Spain
Uruguay
Venezuela

APPENDIX 3 - (Continued)

National Standards Issued in German

Austria
Germany, Fed. Rep.
German, D.D.R.
Switzerland *(French, Italian)*

National Standards Issued in Italian

Italy
Switzerland *(French, German)*

National Standards Issued in Portuguese

Brazil
Portugal

National Standards Issued in Other European Languages

Western Europe	Eastern Europe
Denmark*	Albania
Finland*	Bulgaria
Greece	Czechoslowakia
Iceland	Hungary
Netherlands	Poland
Norway	Romania
Sweden*	U.S.S.R.
Turkey	Yugoslavia

National Standards Issued in Other Languages

China, P.R.
Egypt
Ethiopia
Indonesia
Iran
Iraq
Israel*
Japan*
Jordan
Korea, D.P.R.
Korea, Rep. of*
Kuwait
Lebanon
Libyan Arab Rep.
Oman
Saudi Arabia*
Sudan*
Syria
Taiwan [Rep. of China]*
Thailand*
Viet Nam, S.R.

No Information Available

Afghanistan
Burma
Cambodia
Laos
Nepal
Yemen

APPENDIX 4.1

MULTI-LINGUAL VOCABULARY OF THE PRINCIPAL TERMS USED IN STANDARDS FOR MODULAR COORDINATION IN BUILDING, INCLUDING JOINTS AND TOLERANCES.

Number references at top of column indicate the relevant ISO Standard and section number.

Part 1: Languages using the Roman alphabet (*Official ISO languages)

	ISO 1791 - 2.2	ISO 1791 - 2.1	ISO 1791 - 2.8	ISO 1791 – 2.9	(2.9)
ENGLISH*	MODULAR COORDINATION	DIMENSIONAL COORDINATION	BASIC MODULE	MULTIMODULE	SUBMODULE
FRENCH*	coordination modulaire	coordination dimensionelle	module de base	multimodule	sous-module
Afrikaans	modulêre koördinasie	afmetingskoördinasie	basiese module	multi module	submodule
Czech	modulová koordinace	rozměrová koordinace	základní modul	zvětšený modul	zlomkový modul
Danish	modulkoordinering	målkkordinering	basismodul (byggemodul)	multimodul	--
Dutch [Netherlandish]	modulaire coördinatie	maatafstemming	basismoduul	multimoduul	submodul
Finnish	moduulijärjestely	mittajärjestely	kantamoduuli	kertomoduuli	osamoduuli
German	Modulordnung (Modularkoordination)	Maßkoordinierung	Grundmodul	Multimodul	Submodul
Hungarian	modulkoordináció	méretkoordináció	alapmodul	megnövelt modul	tört modul
Irish	comhordú modúlach	comhordú toiseach	modúl bunata	ilmhodúl	fo-mhodúl
Italian	coordinazione modulare	coordinazione dimensionale	modulo base	multimodulo	sottomodulo
Norwegian	modulkoordinering		basismodul	multimodul	
Polish	koordynacja modularna	koordynacja wymiarowa	moduł podstawowy	multimoduł	submoduł
Portuguese	coordenação modular				
Romanian	coordonare modulară	coordonare dimensională	modulul de bază	multimodul	summodul
Serbo-Croatian	modularna koordinacija		osnovni modul		
Spanish	coordinación modular	coordinación dimensional	módulo normal	multimódulo	submódulo
Swedish	modulkoordinering	måttkoordinering	basmodul	multimodul	submodul
Turkish	modüler koordinasyon	boyutsal koordinasyon	temel modül	büyük modüller	alt modüller

Part 2: Languages using the Cyrillic or Greek alphabet (*Official ISO language)

RUSSIAN*	Модульную координацию	Размерная координация		Мултимодули	Подмодули
Bulgarian	Модулна координация		Основен модул	ден модул	Умален модул
Greek	Συσχετισμένη τυποποίησις ἡ Ἀρθρωτὸς συσχετισμός	Διαστασιολογικὸς συσχετισμός	Βασικὸν μέτρον συσχετισμοῦ		

Note: The Cyrillic alphabet is used by Serbs and Montenegrins with the Serbo-Croatian language.

Part 3: Languages using other alphabets, letter or syllabic symbols and horizontal type

Arabic	توافق معيـــارى	توافق بعـــدى	معيار أساســى	معيار متعـــدد	معيار فرعـــى
Chinese	模矩配合	尺度配合	基本模矩	倍模矩	
Hebrew	קואורדינציה מודולרית	קואורדינציה ממדית	מודול בסיסי	מולטי-מודול	תת-מודול
Japanese	モデュール割り	寸法調整	基本モデュール	マルチモデュール	サブモデュール
Korean	건축 척도 조정	치수 조정	기본 모듈을	복합모듈을	
Thai	การประสานทางพิกัด	การประสานทางมิติ	หน่วยพิกัดรากฐาน	หน่วยพูนพิกัด	หน่วยพิกัดย่อย

APPENDIX 4.2

MULTI-LINGUAL VOCABULARY OF THE PRINCIPAL TERMS USED IN STANDARDS FOR MODULAR COORDINATION IN BUILDING, INCLUDING JOINTS AND TOLERANCES.

Number references at top of column indicate the relevant ISO Standard and section number.

Part 1: Languages using the Roman alphabet (*Official ISO languages)

	ISO 1791 - 2.10	ISO 1791 - 2.11	ISO 1791 - 2.13	ISO 1791 - 2.19
ENGLISH*	PLANNING MODULE	MODULAR SIZE	COORDINATING DIMENSION	REFERENCE SYSTEM
FRENCH*	module de projet	dimension modulaire	dimension de coordination	système de référence
Afrikaans	--	modulêre grootte	koördinerende afmeting	verwysingstelsel
Czech	návrhový modul	modulový rozměr	koordinační rozměr	vztažná soustava
Danish	planlægningsmodul	modulmål	koordineringsmål	referencesystem
Dutch [Netherlandish]	ontwerpmodul	modulaire maat	coördinatiemaat	referentiestelsel
Finnish	suunnittelumoduuli	moduulimitta	liittymismitta	viitejärjestelmä
German	Planungsmodul	Modulare Größe (Modulares Maß)	Koordinationsmaß	Bezygssystem (Koordinationssystem)
Hungarian	tervezési modul	modul méret	koordinációs méret	vonatkoztatási/rendezési/ rendszer
Irish	modúl pleanála	méid mhodúlach	toise chomhordúcháin	córas tagartha
Italian	modulo di progetto	dimensione modulare	dimensione di coordinazione	sistema di riferimento
Norwegian	planleggningsmodul	modulmål	koordineringsmål	referansesystem
Polish	moduł projektowy	wymiar modularny	wymiar koordynacyjny (wymiar skoordynowany)	system odniesienia
Portuguese	módulo de projeto			sistema de referência
Romanian	modulii de proiect	dimensiune modulară	dimensiune de coordonare	sistem de referinţă
Serbo-Croatian				
Spanish	módulo de proyecto (módulo de diseño)	medida modular (dimensión modular)	dimensión de coordinación	sistema de referencia
Swedish	(planläggningsmodul)	modulmått	koordineringsmått	referenssystem
Turkish	proje modülü	modüler boyut	koordinasyon (uyuşum) boyutu	referans sistemi

Part 2: Languages using the Cyrillic or Greek alphabet (*Official ISO language)

RUSSIAN*				
Bulgarian				
Greek				Σύστημα άναφορᾶς

Note: The Cyrillic alphabet is used by Serbs and Montenegrins with the Serbo-Croatian language.

Part 3: Languages using other alphabets, letter or syllabic symbols and horizontal type

Arabic	تخطيط معيارى	مقاس (حجم) معيارى	بعد توافقى	نظام مرجع
Chinese			調整尺度	
Hebrew	מדדול תכנון	מידה מדדלרית	ממד הקואורדינציה	מערכת ייחוס
Japanese	計画モデュール	モデュール寸法	調整寸法	基準システム
Korean	계획모듈을		조정칫수	
Thai	พิกัดฐาน	ขนาดตามพิกัด	มิติประสาน	ระบบฐาน

APPENDIX 4.3

MULTI-LINGUAL VOCABULARY OF THE PRINCIPAL TERMS USED IN STANDARDS FOR MODULAR COORDINATION IN BUILDING, INCLUDING JOINTS AND TOLERANCES.

Number references at top of column indicate the relevant ISO Standard and section number.

Part 1: Languages using the Roman alphabet (*Official ISO languages)

	ISO 1791-- 2.20	ISO 1791 - 2.22	ISO 1791 - 2.24	ISO 1791 - 2.27	ISO 1791 - 2.28
ENGLISH*	MODULAR GRID	MODULAR PLANE	MODULAR LINE	CONTROLLING ZONE	NEUTRAL ZONE
FRENCH*	quadrillage modulaire	plan modulaire	ligne modulaire	zone clé	zone neutre
Afrikaans	modulêre ruit	modulêre vlak	modulêre lyn	beheersone	neutrale sone
Czech	modulová síť	modulová plocha	modulová čára	klíčové pásmo	neutrální pásmo
Danish	modulnet	modulplan	modullinie	--	neutral zone
Dutch [Netherlandish]	modulair rooster	modulair vlak	modulaire lijn	zone (in section) band (on plan)	--
Finnish	moduuliverkko	moduulitaso	moduuliviiva	viitevyöhyke	neutraalivyöhyke
German	Modularer Raster	Modulare Ebene	Modulare Linie	Kontrollzone	Neutrale Zone (Nichtmodulare Zone)
Hungarian	modulháló	modulsik	modulegyenes	rendező zóna	semleges zóna
Irish	eangach mhodúlach	plána modúlach	líne modúlach	crios rialúchaín	crios neodrach
Italian	reticolo modulare	piano modulare	linea modulare	zona modulare	zona neutra
Norwegian	modulnett	modulplan	modullinje		neutral sone
Polish	siatka modularna	płaszczyzna modularna	linia modularna	strefa kontrolowana	strefa neutralna
Portuguese	quadrícula modular				zona neutra
Romanian	tramă modulară (rețea modulară)		linie modulară		zonă neutră
Serbo-Croatian					
Spanish	quadrícula modular (reticula modular)	plano modular	linea modular	--	zona neutra (zona neutral)
Swedish	modulnät	modulplan	modullinje	--	neutral zon
Turkish	modüler ag/ modüler izgara	modüler düzlem	modüler doğru	kontrol bölgesi/ anahtar bölge	nötr bölge

Part 2: Languages using the Cyrillic or Greek alphabet (*Official ISO language)

RUSSIAN*					
Bulgarian	Модулна мрежа				
Greek					

Note: The Cyrillic alphabet is used by Serbs and Montenegrins with the Serbo-Croatian language.

Part 3: Languages using other alphabets, letter or syllabic symbols and horizontal type

Arabic	شبكة معياريه	محتوى معيارى	خط معيارى	منطقة ضبط	منطقه محايـــده
Chinese					
Hebrew	רשת מדולרית	מישור מדולרי	קו רשת מדולרית	איזור מדולרי	איזור ניטרלי
Japanese	モデュール格子	モデュール面	モデュール線	調整域	ニュートラルゾーン
Korean	모듈을 격자		모듈을 선		중립대
Thai	ตารางตามพิกัด	ระนาบตามพิกัด	เสนตามพิกัด	เขตควบคุม	เขตเป็นกลาง

APPENDIX 4.4

MULTI-LINGUAL VOCABULARY OF THE PRINCIPAL TERMS USED IN STANDARDS FOR MODULAR COORDINATION IN BUILDING, INCLUDING JOINTS AND TOLERANCES.

Number references at top of column indicate the relevant ISO Standard and section number.

Part 1: Languages using the Roman alphabet (*Official ISO languages)

	ISO 1803 - 3.2.1	ISO 1803 - 3.2.2	ISO 1803 - 3.2.3	ISO 1803 - 3.4.2	ISO 1803 - 3.4.2	ISO 1803 - 3.4.3
ENGLISH*	DIMENSION(S)	SIZE(S)	DEVIATION(S)	TOLERANCE(S)	JOINT(S)	CLEARANCE(S)
FRENCH*	dimension(s)	dimension(s)	écart(s)	tolérance(s)	joint(s)	jeu(x)
Afrikaans	afmeting(s)	grootte(s)	afwyking	toleransie(s)	voeg (voeë)	speelruimte
Czech	velikost	rozměr	odchylka	tolerance	spoj; styk	spára
Danish	dimension	mål	afvigelse	tolerancer	fuge	
Dutch [Netherlandish]	maat afmeting	maat	maatafwijking	tolerantie	voeg	
Finnish	ulottuvuus (ulottuvuudet)	mitta (mitat)	poikkeama(t)	toleranssi(t)	sauma(t)	(sauman) välys
German	Abmessung(en)	Maß(e)	Maßabweichung(en)	Toleranz(en)	Fuge(n)	Spiel
Hungarian	méret	méret	eltérés	türés	kapcsolati hézag	játék
Irish	toise	méid	diallas	lamháltas	siúnta	glanspás
Italian	dimensione (grandezza fisica)	dimensione (misura)	scostamento	tolleranza	giunto	gioco
Norwegian	dimensjon	mål	avvik	toleranse(r)	fuge(r)	
Polish	wymiar (wymiary)	wymiar(y) [wielkość(i)]	odchylka (odchylki)	tolerancja (tolerancje)	spoina (spoiny)	gra, [luz]
Portuguese	dimensão	medida		tolerância	junta	
Romanian	dimensiune	dimensiune	abatere	toleranţă	rost	joc
Serbo-Croatian				tolerancije		
Spanish	dimensión	medida	desviación differenzia	tolerancia(s)	junta(s)	juego (holgura)
Swedish	dimension(er)	mått	avvikelse(r)	tolerans(er)	fog(ar)	spel
Turkish	boyut(lar)	boyut(lar)	sapma(lar)	tolerans(lar)	ek yer(ler)i	oturma pay(lar)ı

Part 2: Languages using the Cyrillic or Greek alphabet (*Official ISO language)

RUSSIAN*				Допуски	Стыки	
Bulgarian	Размер(и)				Фуга	
Greek	Διάστασις		Ἀπόκλισις	Ἄνοιχή		Διάκενον (Τζόγος)

Note: The Cyrillic alphabet is used by Serbs and Montenegrins with the Serbo-Croatian language.

Part 3: Languages using other alphabets, letter or syllabic symbols and horizontal type

Arabic	بعد (أبعاد)	مقاس ، حجم	انحراف	تفاوت ، تجاوز	وصلة (وصلات)	حيز الخلوصى
Chinese	尺度					
Hebrew	מימד (מידה)	מידה	סטייה	סבולת	מישק מחבר	מירווח
Japanese	寸法	サイズ	偏差	公差	接合	すきま
Korean	칫수	크기		공차	죠인트	
Thai	มิติ	ขนาด	ความเบี่ยงเบน	เกณฑ์ความคลาดเคลื่อน	รอยต่อ	ระยะเว้นบวก

APPENDIX 5 COPY OF LETTER AND QUESTIONNAIRE ON NBSIR 79-1791 SENT TO NATIONAL STANDARDS ORGANIZATIONS AFFILIATED WITH ISO AND SELECTED OTHERS

September 11, 1979 (On official letterhead)

[The Head]
[National Standards Body]

[Dear Sir (or Dear Madam)]

As part of our background investigation on the application and advancement of the concept of dimensional coordination for buildings in the United States, we have prepared a listing of current international and national standards dealing with dimensional and modular coordination and the associated subjects of tolerances and joints.

The result of this study is the Interim Report NBSIR 79-1791, "International and National Standards on Dimensional Coordination, Modular Coordination, Tolerances and Joints in Building." A copy of this document is enclosed for your information and comment.

We would like to ascertain whether the data presented in this document are accurate and complete for national standards administered by your organization and obtain any additions or corrections so that we can prepare a final publication on this subject in the near future. To enable us to coordinate this information, we ask your assistance by returning up-to-date information in the enclosed format. A separate set of pages containing information specific to your nation's standards is also enclosed to facilitate the preparation of a marked-up copy.

After the receipt of replies and the revision of the document, we will supply your organization with complimentary copies of the revised document.

To allow us to complete the work in a timely manner, we would appreciate your reply by November 15, 1979. Thank you for your assistance.

Sincerely,

JAMES G. GROSS, Chief
Building Economics and Regulatory
Technology Division
Center for Building Technology, NEL

Enclosures

REVIEW OF INTERNATIONAL AND NATIONAL STANDARDS ON DIMENSIONAL COORDINATION, MODULAR COORDINATION, TOLERANCES AND JOINTS IN BUILDING, NBSIR 79-1791

1. Are the name and address of your national standards organization shown correctly?

   Yes _____ No _____

   If "No," please correct:

   _____

   _____

   _____

2. What technical committee (or committees) have jurisdiction over standards in the subject areas of dimensional coordination, modular coordination, tolerances and joints in building, and which organization holds the secretariat(s)?

   Committee _____

   Secretariat _____

   Committee _____

   Secretariat _____

   Committee _____

   Secretariat _____

3. Is the listing of standards given for your nation complete and correct?

   Yes _____ No _____

   If "No," please list any errors, omissions, or required deletions on a marked-up page, or type out.

4. Please indicate the degree of acceptance or referencing of international (ISO) standards in your national standards by checking and/or supplementing the data given in Section 9 of NBSIR 79-1791.

   Please mark the attached copy of Figure 9.1 with the relevant codes (A, B, C, D, or E; and, R, where appropriate) to indicate the extent of compatibility and referencing.

5. and 6. for standards issued in languages other than English

5. a. Are English translations available for your national standards?

   Yes _____ No _____

   Some _____

   If "Yes" or "Some," please list or mark up on standards page(s) with the symbol (E).

   Also, please send us copies or inform us how to obtain such translations.

   b. Do you have a list of English translations of the titles of your national standards dealing with the subject area?

   Yes _____ No _____

   Please provide a list of English translations for inclusion in the revised publication. Please indicate whether the translations shown in NBSIR 79-1791 are correct.

6. Please check, fill in, or correct the terms given in Appendix 4 to provide a comprehensive vocabulary of the principal terms used in connection with dimensional/modular coordination.

7. Any other comments or suggestions.

   _____

   _____

   _____

Signature _____ Date _____

Organization _____

S-114A (REV. 2-8C)

U.S. DEPT. OF COMM. BIBLIOGRAPHIC DATA SHEET (See instructions)	1. PUBLICATION OR REPORT NO. NBS SP 595	2. Performing Organ. Report No.	3. Publication Date October 1980

TITLE AND SUBTITLE

nternational and National Standards on Dimensional Coordination, Modular Coordination, olerances and Joints in Building

AUTHOR(S)

lans J. Milton

PERFORMING ORGANIZATION (If joint or other than NBS, see instructions)

NATIONAL BUREAU OF STANDARDS
DEPARTMENT OF COMMERCE
WASHINGTON, D.C. 20234

7. Contract/Grant No.

8. Type of Report & Period Covered
Final

SPONSORING ORGANIZATION NAME AND COMPLETE ADDRESS (Street, City, State, ZIP)

(Partial Funding)
Energy, Building Technology and Standards Research Division
Department of Housing and Urban Development
Washington, D.C. 20410

SUPPLEMENTARY NOTES

Supersedes NBSIR 79-1791
Library of Congress Catalog Card Number: 80-600147

☐ Document describes a computer program; SF-185, FIPS Software Summary, is attached.

ABSTRACT (A 200-word or less factual summary of most significant information. If document includes a significant bibliography or literature survey, mention it here)

This publication lists international, multi-national [regional], and national standards from over 50 countries dealing with the principles and application of dimensional or modular coordination in building, including joints and tolerances. It is based on NBSIR 79-1791, with the same title, which was sent to national and multi-national standards organizations for review and comment.

The document shows the widespread adoption of the international building module of 100 mm (also designated as M) as a basis for dimensional rationalization in building design, production and construction. The listing includes international (ISO) standards, multi-national (COPANT, ICAITI, and CMEA) standards, and national standards from all major countries. Brief summaries of contents have been included where available, and titles in English for documents printed in other languages. Appendixes illustrate international cooperation on the subject, a multi-lingual vocabulary of 20 key terms, and review comments received.

The main purpose of the document is to assist the U.S. construction community by providing information on international precedent to facilitate decisionmaking relative to new standards for dimensional [modular] coordination in building, especially those to be developed in metric (SI) units. Key findings have been summarized. The document may also assist exporters of building products and/or services.

KEY WORDS (Six to twelve entries; alphabetical order; capitalize only proper names; and separate key words by semicolons)

Building module; dimensional coordination; metric design and construction; modular coordination; standards.

AVAILABILITY

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14. NO. OF PRINTED PAGES
154

15. Price
$5.50

.S. GOVERNMENT PRINTING OFFICE: 1980 O— 328-920/6564

USCOMM-DC 6043-P80

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