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ABSTRACT

TECHNICAL NOTES ARE PRESENTED CONCERNING DOCUMENTATION OF PRIMARY AND SECONDARY SOURCE MATERIALS FOR EDUCATIONAL BUILDINGS. IN CONSIDERING THE PROCUREMENT OF LITERATURE FOR A SCHOOL BUILDING DEPARTMENT, DISCUSSION IS DIRECTED TO--(1) ATTAINMENT OF MATERIALS FROM NATIONAL COMMISSIONS FOR UNESCO AND FROM ARISBR, (2) LOAN AND EXCHANGE OF PUBLICATIONS, AND (3) THE DANGERS OF DOCUMENTATION. A LIST OF ADDRESSES FROM WHICH PUBLICATIONS MAY BE OBTAINED FREE OR ON EXCHANGE IS INCLUDED. STORAGE AND ARRANGEMENT OF MATERIALS ARE DISCUSSED ALONG WITH OTHER TOPICS RELATING TO THE ORGANIZATION OF PROCURED MATERIAL. ALSO INCLUDED ARE ABSTRACTS OF 11 JOURNAL ARTICLES CONCERNED WITH VARIOUS ASPECTS OF EDUCATIONAL BUILDINGS. (FS)

Asian Regional Institute for School Building Research

Sponsored by Unesco

BUILDINGS FOR EDUCATION

Vol. 2 No. 3

September 1968

ARISBR

COLOMBO

I. QUARTERLY REVIEW

The Institute's Activities, July - September 1968

International Conference on Educational Planning, UNESCO, Paris:

The Director of the Institute attended the International Conference on Educational Planning, held in Unesco, Paris from 6 August to 14 August, 1968. The following comprised the main items discussed by the Conference:

1. The trends, problems and needs in the field of educational planning;
2. The different ways of tackling educational planning and its objectives;
3. Ways and means of implementing educational plans.

Fourth Workshop of Directors and Senior Experts of UNESCO's School Building Research Institutes:

The Director together with Mr. D. J. Vickery, Research Architect, attended this Workshop in Paris from 19 to 23 August, 1968.

The first three days of the Workshop were devoted to a discussion of the problems of university planning, design and construction in the context of the Institutes' future programmes. This part of the workshop was attended by four Consultants, all specialists in university design. Observers were also present representing the World Bank and the International Union of Architects. The Workshop concluded with a review of the collaborative research programmes being undertaken by the three Institutes as well as of the future programmes planned by the three Institutes for 1969-70.

Participation in the Course at the Asian Institute for Teachers Educators, Quezon City, Philippines:

The Institute's Educationist, Mr. P. Senarath, participated in the AITE Course at Quezon City during September. This is the first occasion on which one of the Institute's staff has taken part in a course at an Institute for Teacher Educators. Mr. Senarath's participation included discussion with teacher educators of the best ways in which use could be made of educational buildings and particularly in the light of the great shortage of schools in Asia, methods for school time-tabling for the intensive use of teaching spaces. At the conclusion of his visit to the Philippines, Mr. Senarath studied schools in Hong Kong and Thailand in connection with problems currently under study in the Institute - notably for the study of "The impact of educational programmes on teaching spaces".

Cost Studies:

The studies of cost and space utilisation in Afghanistan, India, Singapore and Iran have now been completed and the relevant reports will shortly be submitted to the Governments. Work continues on the study of per place costs of high rise schools.

Contracts:

The Central Building Research Institute, Roorkee is, under contract to the Institute, currently engaged in installing equipment for the measurement of luminance and availability of daylighting at Colombo, Singapore, Bandung, Quezon City and Hongkong. C.B.R.I's Illumination Expert, Dr. V. Narasimhan has completed the installation work in Colombo and it is anticipated that measurements at all stations will commence in October, 1968. The programme of measurements will continue for one year with concurrent analysis of data which will be sent to the Central Building Research Institute as the measurements proceed.

Development Group Work:

The Institute's Development Group Advisor has again visited East Pakistan for further discussions on design and construction of prototype cyclone resistant primary schools. He has also again visited Iran and Afghanistan in connection with proposals for the establishment of school building development groups in these countries.

In July the Development Group Architect attended the meeting at the Ministry of Education, Government of India in New Delhi, at which a National Group for India was formed following the recommendations of the report of the Education Commission. This central group will advise and guide the several development groups that have been formed and which this Institute will be forming in future in the various states of the union.

Visit of the Director to attend the meeting of the International Institute of Education Research, Japan:

The Director of ARISBR attended the First Meeting of the Consultative Committee on Unesco NIER Regional Programme for Educational Research in Asia held in Tokyo from 17 to 23 June, 1968. Included in the proposed programme for 1969-70 was the investigation of the use and adaptation of audio-visual media to the educational programmes of Asian countries. ARISBR will participate in this programme by sending the Research Architect to Japan in early 1969 to investigate this matter from the point of view of design of buildings of schools which utilise these media.

The Director also took the opportunity to inform the meeting of ways in which ARISER's programme could benefit from a study from the educational research institute, particularly in respect of the question of the optimum size of schools and classes. It was agreed that a study should be made of this subject.

Publications

Study no.4 - Design of Physics Laboratories in Asian Second Level Schools - has now been published. The study suggests possible development in physics laboratory design made necessary by the changes that are currently taking place in the methods of teaching science to second level children. The study includes not only an educational review of the changing situation in physics teaching, but also suggests laboratory layouts to accommodate the changes. The study describes the design and construction in the Institute of a new type of physics bench for the new laboratories. Lareg scale working drawings of this bench in both metric and inch units are available on application to the Institute's Documentalist.

Documentation

The Institute's documentation staff has been augmented by a librarian, Miss J. Critchley, who will be working in the Institute for a period of one year. Miss Critchley's services have been made available to the Government of Ceylon through the Voluntary Service Overseas Organisation of the British Government.

The Documentalist has produced a manual on the organisation of a very simple school building documentation unit in a government department. It is designed not for trained library staff but for those officers in the department who are concerned only part-time with the organisation of the departmental library section. This manual is produced in the Technical Notes Section of this issue of *Buildings for Education*, but if separate copies are required they may be requested from the Documentalist.

The Library section has considerably augmented its material over the past months and with the appointment of Miss Critchley in September expects to make faster progress both in ordering and processing material. The Documentation Section continues to edit and print the Institute's reports and studies and has produced three bibliographies, as well as its Accession List no.13 in the recent quarter.

Visitors

During the three months covered by this review, the Institute has been visited by -

Mr. Hall,
Colombo Plan Advisor.

Mr. J. Learmonth,
Architect,
Melbourne, Australia.
(in connection with university planning in which he has been engaged for some time in Canada)

Mr. Ziogas,
Architect,
Unesco Consultant
(in connection with World Bank Mission to Korea)

Mr. Nettleton,
Architect and Unesco Consultant
(in connection with mission to design primary schools in West Irian under the auspices of FUNDWI)

Mr. Benton,
Research Architect,
Regional School Building Institute for Africa.

Dr. V. Narasimhan,
Senior Scientist (Illumination)
Central Building Research Institute,
Roorkee, India.

II. TECHNICAL NOTES

DOCUMENTATION FOR EDUCATIONAL BUILDING

There is relatively little documentation on building, less still on school building, and even less on school building in Asia. Primarily, the major part of documentation for school building research is gathered in the fields of education and architecture - educational planning, method and content, and the architectural expression of these educational factors. Compared with the total production of published material, this is a very small section of literature and if we restrict it further to include only published material on Asian school building then we find that the field is so narrow that very little has as yet reached the press. In fact, as far as Asia is concerned, the most valuable material is rarely published at all; it is hidden away in the cupboards, files and plan-chests of government departments from Iran to Japan and from Mongolia to Indonesia.

Research documentation includes primary and secondary source materials. Primary source materials are found in the fields of architecture and building in trade catalogues and leaflets, in drawings, slides and photographs, in models and specifications. In the field of education they include curricula, syllabuses, teaching materials and equipment and data on school population, etc. In addition, and falling into any of the categories mentioned below as secondary source material, are all the information media of subjects closely allied to, or crossing the paths of, architectural and educational research - weather reports, sociological data, budgets, economic, geographical and geological maps, television and photographic equipment, building materials - to mention a few.

Secondary source materials fall into the following categories:

1. Reference material, which has a general approach and to which the researcher can go either for a complete survey of his field or for up-to-date tables of statistics, dictionaries, directories, etc. From these he is generally directed to further reading in his specific field.
2. Text books, not in the sense of school texts, but standards works on a subject. They include a detailed review of the subject and practical instructions on the techniques employed in the field. Handbooks and Standards fall also into this category.
3. Monographs, dealing with new or old ideas in detail, and presenting a particular case, as well as conference proceedings, papers and reports.
4. Reports and Studies, often produced in series, which deal with specific aspects of a subject. They often introduce new methods and concepts and may influence a whole field of research.

5. Periodicals, which rarely deal at length with a subject but which may publish the latest findings, and earliest reports on new developments. They also review relevant literature.
6. Indexes or abstracts of literature which review the field of literature on a subject, and contain digests and summaries of the contents of periodical articles, books, reports and conference proceedings.

Many people associate only the secondary source material with libraries, but in fact a good research library will keep and use both primary and secondary source material.

A. PROCUREMENT OF LITERATURE

The ARISBR library spends about $2,200 per year on literature of which $1,000 is spent on monographic materials mentioned in categories 1 to 4 above; and $1,200 on periodical subscriptions for the materials mentioned in Categories 5 and 6. This supplies only about 40% of the documentation required. The remaining 60% is received free-of-charge, mainly in exchange for the publications of the Institute. Of this 60% approximately 40% comes from the Asian region and is considered the most essential source material. It is the Institute's intention to keep its expenditure on the Documentation Section, in the field of procurement of literature, to this figure, and to concentrate on ways of improving and expanding the library at the lowest cost. Such a sum is workable because while we are aiming to build up a library representative of the literature available in the field of educational building, we are also endeavouring to illustrate to other libraries beginning in the same field the type of library which they themselves could develop.

In Asia we no longer attempt to build up huge library establishments such as operate in Europe and America after many years of liberal subsidy and informed collection. Indeed it would be almost impossible to do this now in Asia. Instead, we are learning to share our resources actively, through inter-library cooperation. In many countries of the region National Documentation Centres have been set up, which are gradually building up a knowledge of available Asian resources and at the same time linking these resources with the world's large libraries. These documentation centres are encouraging government departments and others to make use of their services in procuring at nominal charges copies of much needed information and data for research purposes. Such service is a valuable supplement to any collection which a department can build up, and the departmental officers should make it their business to become familiar with the national documentation centre, or the national library in their country and to make use of its services.

This does not mean that the department cannot have a useful and active collection of material. On the contrary, if advantage is taken of the knowledge possessed by the national documentation centres of other institutions, the department can contact these institutions direct.

Exchange of Publications

As has been stated above, 60% of ARISBR's library material is acquired free-of-charge, or in exchange for its own publications. Perhaps the most important development in the field of documentation in the last 20 years has been the growth of the international exchange of publications. Where governments have signed the Unesco-sponsored Convention Concerning the International Exchange of Publications, and the Convention Concerning the Exchange of Official Publications and Government Documents between States, the exchange of publications becomes more simplified. It follows that every effort should be made by government departments to see that their publications are made known to others and that they become available for free exchange with other governments, or for purchase where necessary. Most Asian Unesco Member States are parties to these Conventions.

National Commissions for Unesco

National Commissions for Unesco are particularly valuable sources of information, and useful channels for exchange purposes. School building departments should be particularly concerned with building up their literature on school building in neighbouring states for comparative purposes and should actively support a policy of free flow of documentation through the National Commission for Unesco in their countries.

The Question of Publishing

Libraries and architectural departments could establish their own programmes for exchange of publications if they are already printing documents and issuing them independently. At the same time where publications are not available from the department itself the department might request use of literature issued by the Ministry to which it is attached, or other departments in the Ministry for this purpose; for instance, a school building section of a Ministry for Education might use mimeographed or printed documents from the Educational Planning Section or lists of publications from its Library. Not only publications could be exchanged but also standard plans for school buildings, specifications for school furniture and equipment, statistics on education and building, and so forth. Appendix 1 lists some of the Institutions which make their literature available free of charge or in exchange for other publications. Appendix 2 indicates some sample letters which could be sent to these addresses requesting free literature or literature on exchange. Many of these institutions make their publications available free to Asian institutions which explain

their needs and their programmes clearly and this would therefore indicate that where a department could clearly specify its annual Work Programme and duplicate this for distribution, it would have a strong chance of obtaining free literature. A sample of a Work Programme is attached as Appendix 3 to indicate how this could be done quite cheaply and at the same time how it could assist the working of the department in clearly specifying the fields of responsibility and probable results of various sections of a department.

Apart from its Work Programme, it would be useful if the school building department could make known its own work via reports, drawings, etc., which indicate the progress of projects and what has been already achieved. The building of schools is essentially a concern of society as a whole, since it is often asked not only to finance it directly, but also to participate actively in it. An annual report, taking into account this social concern would publicise the needs of school building in the country, and what is being done in the department to meet these needs. It would help create confidence in the educational programme as a whole, since such a report would need to explain not only the statistics on school building, but also something of the educational concepts which underly the building. This type of report makes valuable material for "exchange" purposes.

In these days, when the cry for "birth control" of publication is becoming louder, one hesitates to encourage further publishing, but one can only reiterate that in the field of school building and especially of school building in Asia, the amount of written and published material is pitifully small, and often out-of-date. One might contribute to the need for materials, and at the same time avoid further multiplication of printed works by submitting articles for publication in the architectural and educational journals already in publication in the country. Most of these are glad to accept fresh contributions and at the same time they have a wider reading public than the department could hope to reach with independent publications. Reprints of articles from such journals can be obtained by the departments or author and can be used to exchange for similar articles with other departments or authors. Ultimately, it is through publication that a reputation in the technical field is built, and research findings utilised.

Unpublished Documents

Apart from published material which is often printed in lists of purchasable material, there is a hidden store of valuable material which should be made available but is very difficult to trace: the written reports, duplicated documents, plans, etc. which are rarely listed anywhere at all. It would greatly help an exchange programme if this material were listed from time to time in annual reports of relevant institutions or government departments.

Dangers of Documentation

We mentioned earlier that the field of published material available in Asia is very limited. On the other hand a comparatively large amount of material on educational building in other countries is readily available to the Asian architect. Much of this material is very stimulating and useful in so far as it offers new and challenging concepts on educational method and school design. Nevertheless, in view of the fact that it is aimed at a different reader under different conditions from those prevailing in Asia, it must be viewed cautiously, and in the correct perspective. An example of this difference in approach can be seen if one examines two series - Profiles of Significant Schools produced by the Educational Facilities Laboratories of the United States, and Building bulletin produced by the Department of Education and Science in the United Kingdom. The British publications whilst concerned with cost reduction or conservation, show marked difference from the Asian point of view in their climatic approach since British school design is concerned with the conservation of heat, whilst the Asian approach is mostly to alleviate and disperse heat. On the other hand the American publications cover a wide scattering of climatic conditions but although much is published concerning costs, it does not appear as such a dramatically pressing prublem as in Asia. A 1967 issue of the American periodical Nation's schools[1] contains an extremely good study of award-winning schools in the United States. The average cost per place shown is $2,000 whereas the Asian cost per place shown in An Asian Model of Educational Development[2] is $120!

A similar case arises in the study of open-hall schools. Open-space schools have achieved popularity in America over the past decade and there have been many reports on the application of this concept. The same probler of noise arises with this type of school in America as in Asia, but the solutions to the problem are different - the American solution includes fully carpeted floors and liberal use of acoustic tiles on ceiling and floors. The Asian solution is one of arrangement of the classroom space. A different teaching approach is also used - that of team-teaching - from the methods generally adopted in Asia. In short, one should read, compare and (if suitable) adapt the recommendations and ideas found in the literature of developed countries.

1/ Nation's schools, v.79, no.1, Jan. 1967, p.50+

2/ Unesco. An Asian model of educational development; perspectives for 1965-80. Paris, 1966. (May be made available free-of-charge to relevant centres.)

What also proves useful and available are the reports and studies issued by building research establishments around the world. Often publications normally charged for are available free on special request to the Head of the issuing organisation, or on exchange for material which does not necessarily balance it in value or application.

Unesco Coupons and Foreign Aid

In spite of all the valuable free literature available, it still remains to be said that the school building department would greatly benefit from a budget for the purchase of some publications where funds can be made available. Such expenditure should be carefully planned in advance. Some funds should be set aside for subscription to essential periodicals; these may be available, as some American periodicals are, through local currency subscriptions, or Unesco coupons may be purchased to pay the subscription in the country of origin.

An amount should also be reserved for abstracts and indexes to periodical literature, since they make available the information contained in periodicals for which continuing subscription is not really essential or justifiable in terms of limited budgets.

A further sum should be set aside for ordering microfilm 3/ or photocopies of articles from periodicals which may be available in another centre either within or outside the country. Thus the school building department or the section in a library catering for its requirements, can have access at least to a wide range of current periodical literature.

Apart from using Unesco coupons, reference and text books are sometimes available through foreign aid schemes; for instance, in some countries it is possible to order foreign books for a scientific nature through a reputed centre and to pay in local currency. Such schemes can be sought out by the librarians where they have been appointed, or a librarian in a neighbouring documentation centre could advise on this. In some of these schemes the choice of books is up to the buyer, in others a list of books are available to choose from. Occasionaly gifts of books can be received from foreign-aid foundations, either in the form of a money grant to buy a stupulated list of books, or a grant of books. A "wants" lists should be kept by the school works department with such a grant in mind. Such gifts come to those who prepare their requests in advance.

3/ Ordering of microfilm depends upon the availability of a microfilm reader; if not available then the suggested photocopies can be possible alternatives.

The most reliable source of information for the school building section is the group of institutions which are engaged on similar research. Lists of publications should be requested from departments, institutions and research establishments and the accession lists* of libraries of other research institutions should be studied and from these can be gained a picture of the published material available in the field of educational building research, and a standard list of requirements can be developed.

Some departments might be fortunate enough to receive a fund of money, including foreign exchange, with which to buy material. In this case, such a fund would be wisely spent on basic reference books such as atlases, dictionaries of building and architectural terms, engineering tables and formulas, time-saver standards, directories of educational and building organizations, and the like. A further sum could advantageously be spent on subscriptions to those basic journals which are not available free of charge - both educational and architectural journals. If such a fund is forthcoming, the ARISBR documentalist would be happy to assist and advise on some basic material to be bought. At the same time ARISBR's Accession List (samples of which are handed to you with the sets of ARISBR papers) contains much standard material of this kind which can be ordered. ARISBR can also supply addresses from which any document on these accession lists can be obtained, and the cost, where it is known.

ARISBR's Papers

The papers published by this Institute are available free-of-charge and they are designed especially for Asian needs. Some contain bibliographies of material which has been carefully selected for its applicability and where possible, its availability to Asia. In addition to the papers, is the newsletter, Buildings for Education which is published quarterly and contains abstracts of articles and books on educational building. Appendix 4 contains a list of the Institute's publications to date and in addition a form which could be filled in requesting your name and address to be added to our mailing list. The Institute's Accession List also contains lists of relevant books and reports of use to a school building section.

It should not be forgotten that even if such a collection is available in the school works department, this will never be enough for the research architect or educationist. Other libraries in your country with parallel or overlapping interests are also important.

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* Accession lists - Lists of books, periodicals, reprints, etc., which the library has received through purchase or gift over a stipulated period of time.

Librarians are beginning to share their resources, that is, to co-operate not only in lending of books, but also in the purchasing of material which might be mutually beneficial to their readers. Into this category can easily fall those publications which, whilst useful to the school works department are beyond their funds, but which another library might be willing to buy in return for your department's purchasing another reference work of value to both places. In this way funds can be spread further to bring more.

B. ORGANISATION OF PROCURED MATERIAL

Assuming that the procedure outlined in Section A above is followed, it is clear that the School Building Department will begin to receive a considerable quantity of material which, if properly handled will help to improve the knowledge and usefulness of the department's professional and technical staff.

Training of a Librarian

Building up a representative collection of documents requires certain skills and training in administration and organization. Asian countries are now well ahead with library training of the kind required for the management of a government library. In fact, in some countries trained library assistants are unable to find work! Government should acknowledge the value of this training as an instrument of development and research and recognize in the librarian an expert in acquisition, organization and distribution of information. What is needed in a library which is concerned with information on educational building is not an architect or an engineer but a librarian fully trained in the art of procuring, and organising information, since procurement in this field is not a straightforward task. Appointing a trained librarian to such a job saves government money, for the architect or engineer can then be released for the jobs for which their training fits them.

On the other hand, although the methods suggested in this paper might help to procure a useful small working collection for the school building department such a collection need not always grow into a library unless the department is going to become something like a national school building research centre. Moreover, it is unlikely that a trained librarian will be made available for such a collection, or even the services of a trained assistant acquired. Hence the following general suggestions may be of assistance to the officer designated in the school building department to take care of the material.

1. Storage of Material.

The first question for the department will be how to store the material it receives. It will arrive in all shapes and sizes but it will be rarely in the form of a book, with strong

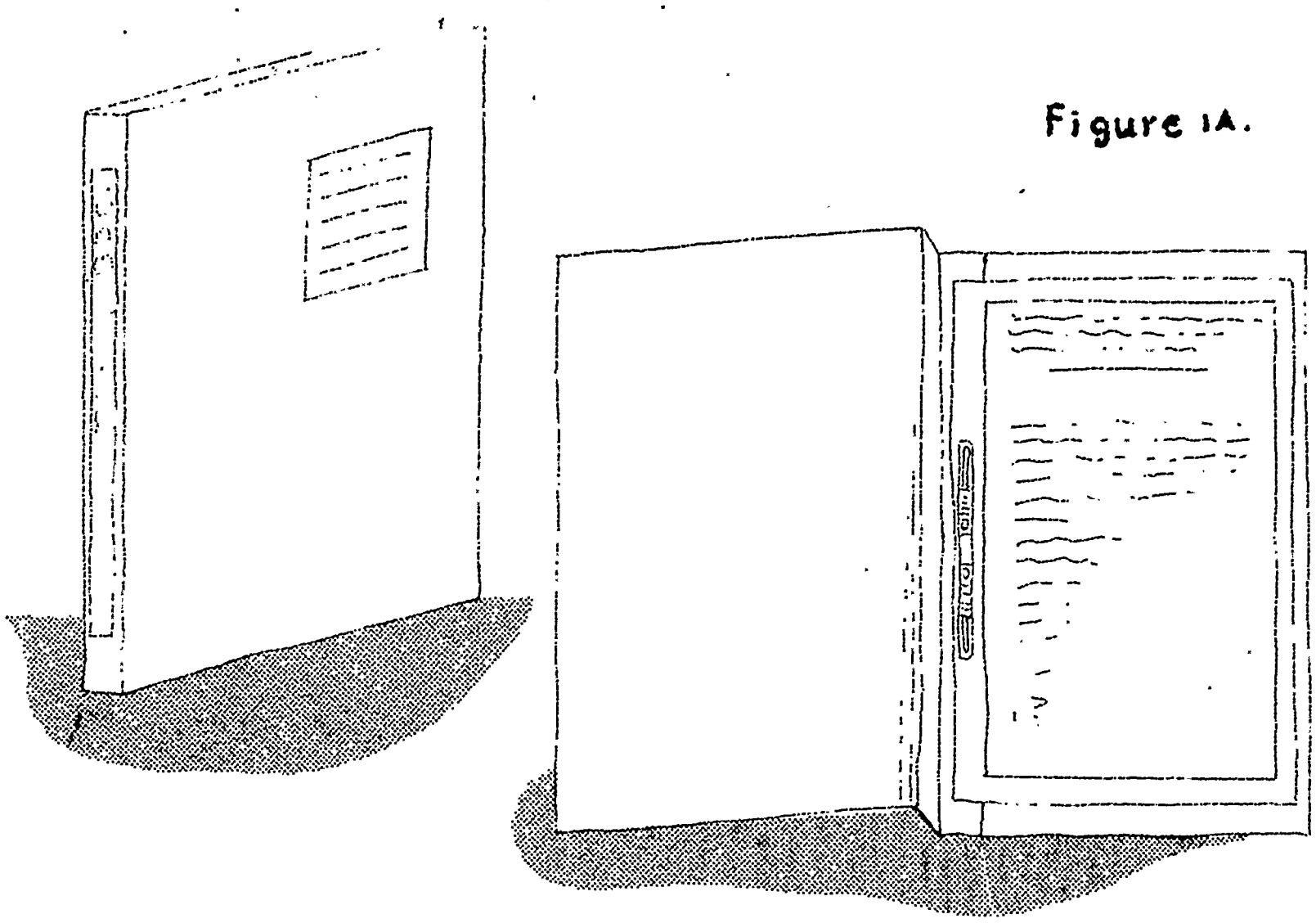


Figure 1A.

Folder for which documents will be punched with standard two-hole punch. One series can be arranged in one folder, using a metal slide or "shoe-lace" to anchor the documents in the folder. This type of folder is best stored inside a pamphlet box.

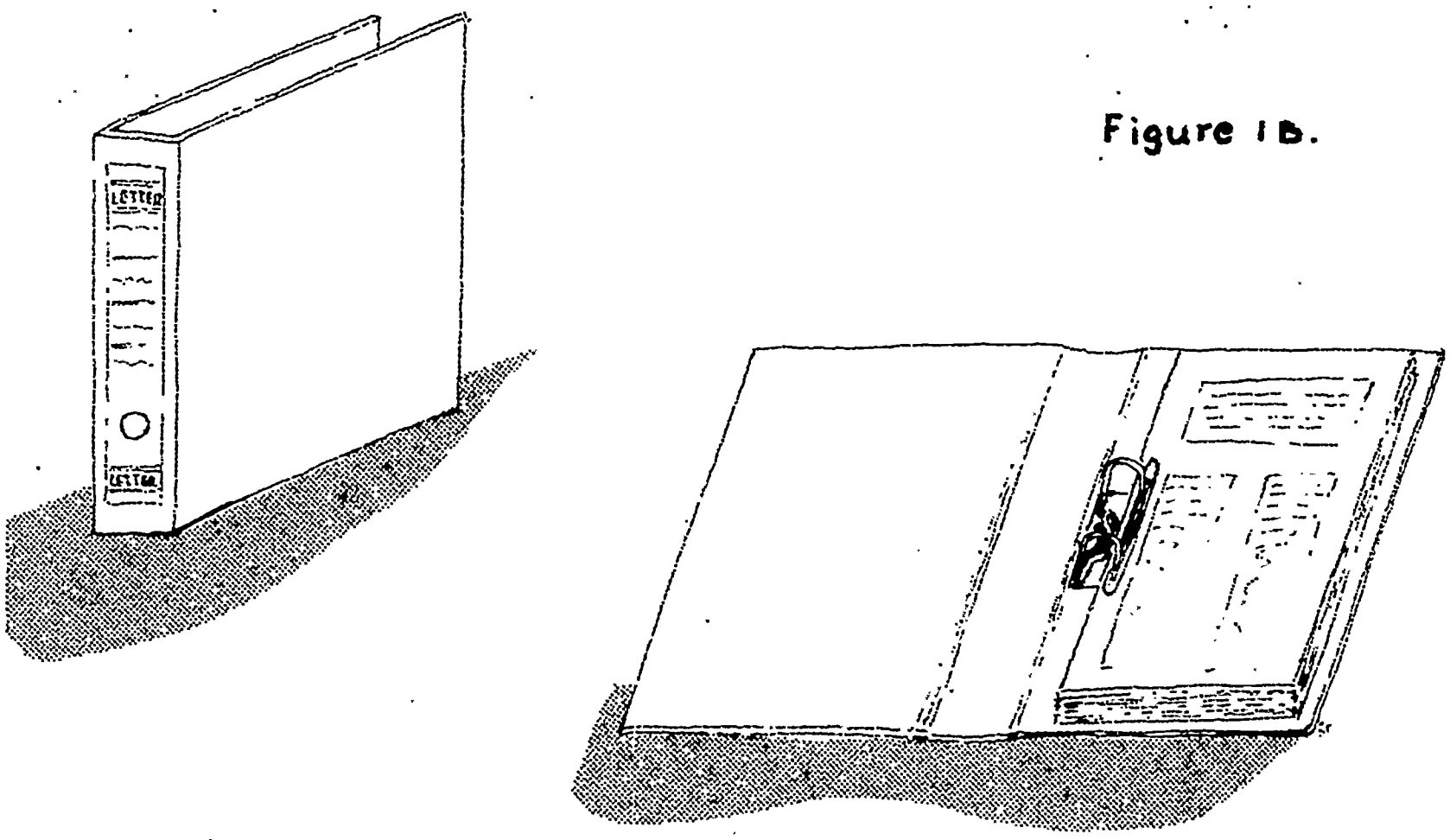
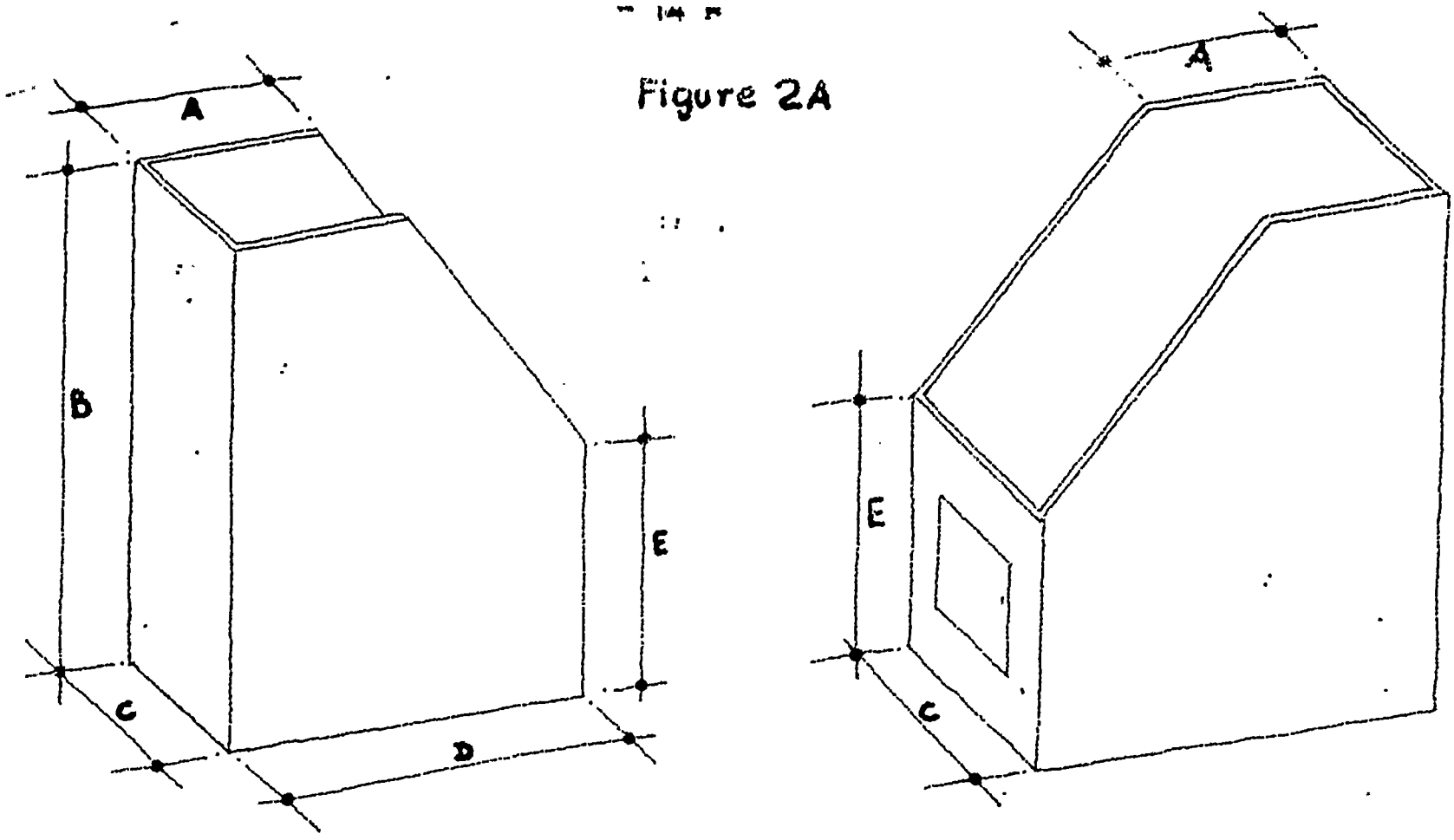


Figure 1B.

"Box-file", the advantage of which is that it can be stood upright on the shelf on its own. It contains a "ring binding" for which a two-hole punch is required. A whole series will easily fit into one box-file, and this type of file is easy to obtain in most government departments.

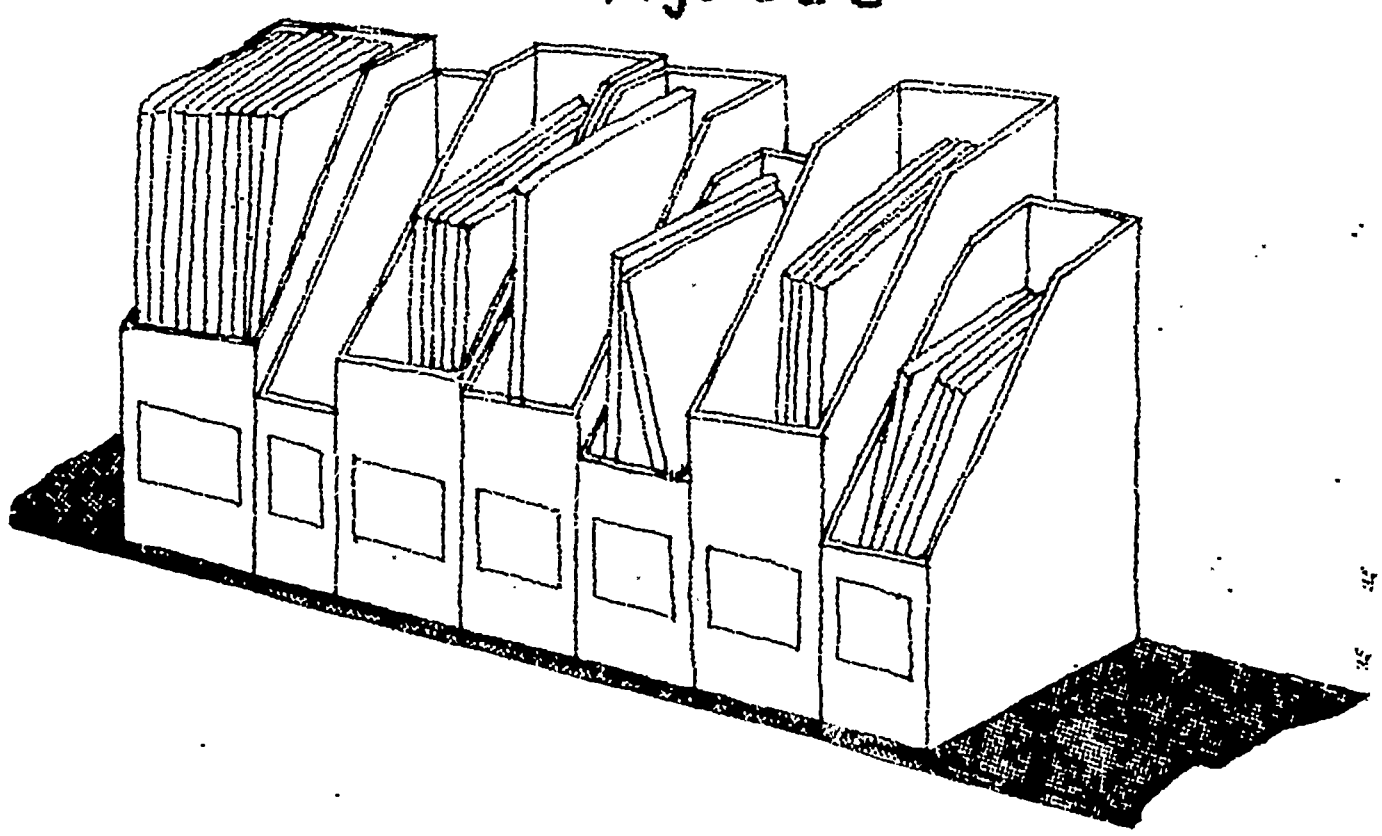
Figure 2A



Pamphlet boxes from which the three sets of dimensions given here will cover most needs.

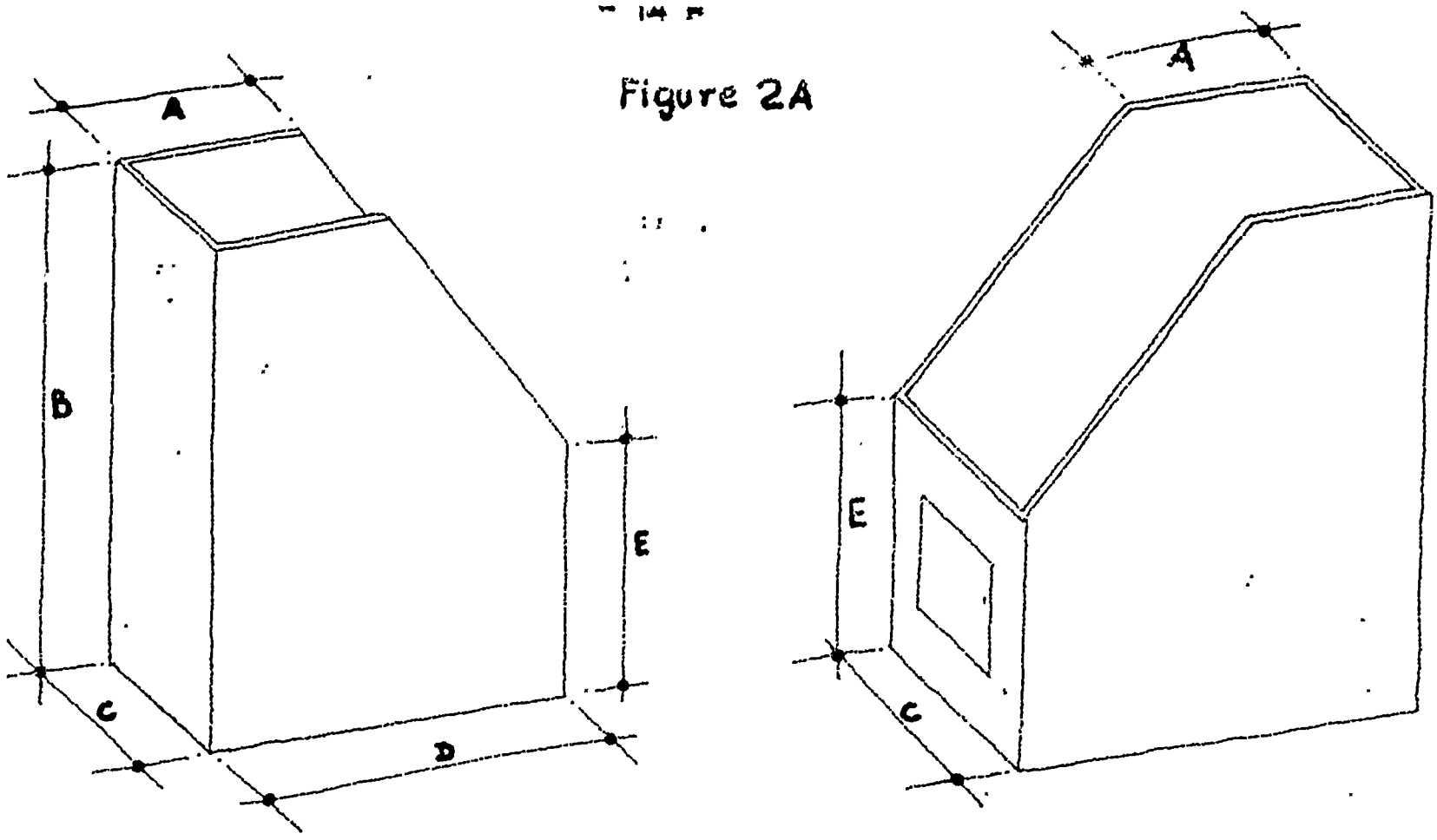
	A	B	C	D	E
Folio - wide	10 cm.	35 cm.	10.25 cm.	27 cm.	15 cm.
Folio - narrow	10 cm.	35 cm.	6 cm.	24 cm.	15 cm.
Quarto	6 cm.	27 cm.	8 cm.	20 cm	12 cm.

Figure 2 B



Pamphlet boxes can hold folders, booklets and papers of various sizes.

Figure 2A



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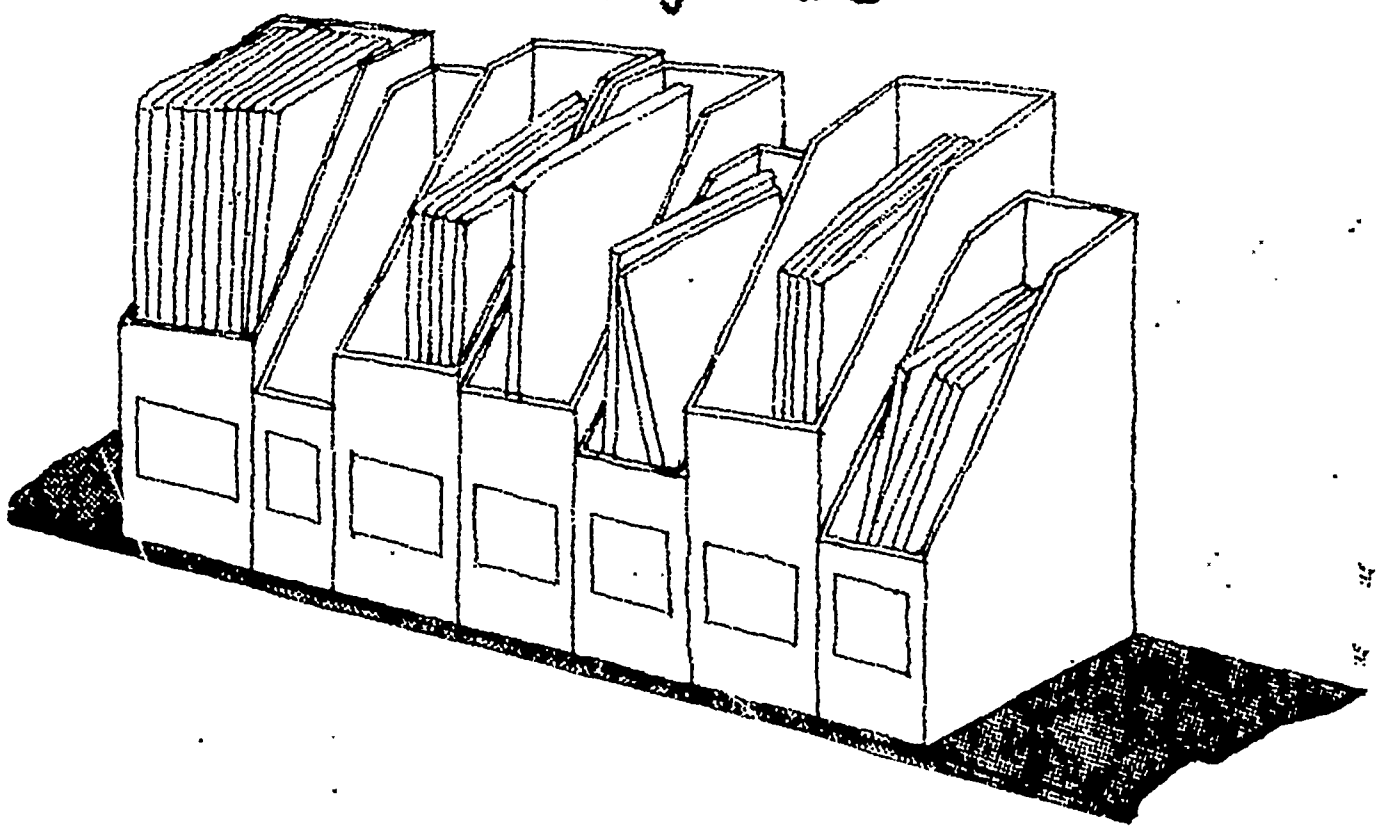
Folio - wide	10 cm.	35 cm.	10.25 cm.	27 cm.	15 cm.
Folio - narrow	10 cm.	35 cm.	6 cm.	24 cm.	15 cm.
Quarto	6 cm.	21 cm.	8 cm.	20 cm	12 cm.

Figure 2 B



Pamphlet boxes can hold folders, booklets and papers of various sizes.

covers and bound text that can stand on its own on a shelf. The department is more likely to be receiving pamphlets and papers of two or three duplicated pages, or sheets of drawings. Such materials has to be protected from damage both in handling and in storage, and the following methods are suggested:

i. Box files, for which sheets are punched, effectively prevent damage to single sheets of paper; they are also rigid enough and wide enough at the spine to stand upright on their own. For this reason they are recommended as the best method of storage. (See Figure 1B)

ii. Manila folders are normally prevalent in most government departments. They can be used where box files are not available. They also take up less room, but do not easily stand upright. (See Figure 1A)

iii. Another method is to make use of pamphlet boxes. These can be bought in some countries, but in others it will be necessary to have them made. (See Figure 2)

If departments have sufficient money more suitable equipment can be bought; many types of storage are mentioned in foreign trade catalogues.

The important concept in beginning such a collection is to encourage the staff to use it. For this reason a locked cupboard, or even a filing cabinet are a disadvantage. It should not be a privilege or trouble to use this material, but a necessity where consultation of standards, regulations, comparative plans, etc. is required. For this reason open shelves are the best storage facilities for the collection. Most government departments are issued with standard storage cupboards and are expected to make do with these for all storage purposes. If these cupboards are used to store library material then the doors should be removed (and used, if possible as extra shelves). The doorless cupboard, or shelves need not look "untidy" provided the material is neatly placed in folders and pamphlet boxes and logically but simply arranged.

3. Arrangement of Material.

It is inevitable that in a drawing office, or school works department the staff member designated to "look after" the material in the sense of organizing it on the shelf will be bothered by such problems as, whether or not it is necessary to make a record of everything received in the department; whether or not to attempt a subject index to the material; whether or not to adopt a standard architectural or building classification code to assign to each piece of material received, and to arrange the material.

Unless this person is engaged on the "library" full time, or has specialised training in librarianship or documentation it is strongly recommended that department heads not expect them to adopt any complicated classification, indexing or cataloguing system. Most of the systems in use in the world are deceptively simple in appearance, but for one reason or another, are difficult to adopt in their entirety for small collections. The latest, and most enthusiastically sponsored for building is the SfB Filing system. This has been adopted by architectural offices in Europe to the extent that its code is often already assigned to trade literature when it is distributed. For this reason, it may be a useful auxiliary arrangement for trade literature and catalogues. A copy of the manual costs 36/-stg from the Publications Department, Royal Institute of British Architects, 66 Portland Place, London, W.1., but in addition to the manual itself, a request should also be made for a copy of the Key to Placings for SfB price 2/6 stg. This was first published in the Architects' journal of 30 June, 1965, p.1545-1565 and is a very much fuller and more accurate index to the Filing Manual than the one included in the Manual itself.

Since it is not recommended that any of the world systems be adopted to arrange the small collection of material which will be held in the school building department, it is suggested that the following very broad subject arrangement will simplify finding of documents, while at the same time taking the burden of maintenance of the collection away from untrained staff.

a) Arrange documents in folders in series, that is, by a collective title often given by an organisation to a number of papers which it issues either at regular intervals, or from time to time. (This method of publication should be quite familiar to architects, builders, draughtsmen and cost technicians since it will be the literature most used by them.)

For instance, the Central Building Research Institute, Roorkee, the Building Research Station in England, and the Commonwealth Experimental Building Station in Australia all publish "series" of papers which are easily recognisable, such as: "BULLETINS" "BUILDING DIGESTS" "CURRENT PAPERS; DESIGN SERIES" "CURRENT PAPERS; CONSTRUCTION SERIES". These papers are published irregularly; that is, without any specific interval between; sometimes two will come out in one month, the next one will be published several months later, and so forth.

The Asian Regional Institute for School Building Research publishes such a series in the papers which you have before you today, that is, its Occasional papers; school building.

Since papers published in such series have usually a common aim or use, it is a good idea to collect them together. For example, collect all the papers of the Building Research Station, Garston, England, together. It issues several irregular series, called "Current Papers" series; the Current papers; construction series, Current papers; design series, Current papers: research series, Current papers; miscellaneous series, etc. Separate these papers into series, by these titles and within each series arrange them in numerical order, the earliest, or smallest number on the botton, the latest and or largest number on the top. Most series also issue an index from time to time which can be either kept separately on the top of the set, or if it also bears a series number, filed in its place, with a note on the file cover: "Indexes, no. ....., ..., etc."

b) Some series are issued regularly, at definite predictable intervals or "periods" - these are periodicals (see item no.46 in Appendix 1). Examples are Building Research Station Digests, Overseas Building Notes, etc. Periodicals should also be arranged in folders, or, if they are large enough, directly in "pamphlet boxes" (Fig. 2) in order of volume and issue number, the earliest on the left, the latest on the right. "Volumes" usually cover a calendar year (but not always) and the numbers issued during the year will bear a volume number and an issue number and probably also a date. For example, Buildings for Education which you will find in your set of ARISBR publications, is a periodical. It is issued regularly at quarterly intervals and its volume covers a calendar year. Thus volume 1 has four issues, and they bear the volume number, issue number, month and year of issue, eg:

volume 1, no.1, April, 1967
volume 1, no.2, June, 1967
volume 1, no.3, September, 1967
volume 1, no.4, December, 1967

The 1968 issues continue as:

volume 2, no.1, March, 1968
volume 2, no.2, June, 1968, and so forth.

Often the last number of a volume will include an index to the whole volume, or the index may appear in the first number of the next volume.

Since periodicals are issued regularly, it can be quite useful to keep a record of their arrival, so that the office can keep a check on their "holdings" of periodicals. If your office decides to ask for some of the free periodicals shown on our list in Appendix 1, it will be useful to use a card, or duplicated page for each periodical as follows:

SAMPLE

Publisher: Société de Propogande et de Diffusion des Techniques du Bâtiment,
33 Avenue Kléber, Paris, 16-e. France

How acquired: Exchange

Holdings: 145 -

Frequency: Monthly except July & Aug

Bind/Unbound

Year	Vol.	Ser.	No.	Jan	Feb	Mar	Apr	May	June	Jul	Aug	Sep	Oct	Nov	Dec	Notes
1966		1		...	146 24-5-66	147 24-5	148 5-9	149 3-10	149 3-10			150 29-10	151 20-12	152 20-12	153 8-3-67	Index In no. 152
1967					154 5-4-67	155 20-5	156 14-6	157 2-8	158. 1-9			159 15-12	160 8-12	161 6-1-68		

Title

BATIR

Location

SELF 1

Annual reports can also be kept in boxes like ordinary p-riodicals, and recorded on similar cards. Series can also be recorded on cards if necessary. See the following example of a series record card.

Publisher: Department of Architectural Science,
University of Sydney,
SYDNEY, N.S.W. AUSTRALIA.

How acquired: Exchange

Holdings: no25 -

Bind/Unbound:

Irregular

Year	Ser	Vol	Circ. to:	Issues:
1962				25,
1963				26, 28, 29,
1964				33, 34, 35
1965				36, 37, 38, 39, 40, 41, 42
1966				47, 50

Title

SYDNEY. UNIVERSITY. Department of Architectural Science. Bulletin.

Location

SHELF 1, a

c) Such a basic arrangement of your material into series, periodicals and annual reports (whether the series are educational, building research, or standards) will still leave a certain amount of material unorganized. This will consist of isolated reports, duplicated documents, conference papers, etc. which do not belong in (a) and (b). These can be collected alphabetically by the authors' name, or by the issuing organization's name, in folders or boxes.

d) Plans and drawings from other organizations may need separate treatment. Such a treatment could be to collect drawings of whole schools together for each country (or district) or if all the drawings received come from only one country, arrange by type of school, eg.

A. Primary schools
B. "Middle" or Junior Schools
C. Secondary schools in general
D. Secondary junior schools

E. Secondary senior schools
F. Vocational schools - secondary level - or technical schools
G. Higher vocational and technical schools
H. Third level buildings
I. Other buildings (non-educational).

Where whole schools are not the subject a similar arrangement for drawings of individual spaces, rooms or units; for furniture and equipment, for details and similar elements, etc. could be devised.

Having decided on the basic physical groupings by form of material, regularity, appearance, etc., the office will want to make some general subject grouping for convenience. This will be dictated as much by the type of storage you have available, as by the subject matter. Even the arrangement in Appendix 1 of this Paper could be taken as simple workable arrangement for your literature. Thinking in terms of a storage cupboard or open shelves, the following would be a simple arrangement using samples from Appendix 1:

Shelf 1: (Samples: Appendix 1, items: 1-6, 16-25 etc.)
Material on scientific, technical and building research, construction, materials. Arrange according to:-
i) country
ii) the issuing organisation.
Sub-arrange by:
a) series
b) periodicals
c) non-series or odd material
d) lists of publications, library lists, bibliographies.

Shelf 2: (Usually have to be bought)
Standards. Arrange according to:-
i) country
ii) issuing organisation.
Sub-arrange by:
a) standards
b) codes of practice
c) draft standards
d) yearbooks listing standards
e) standards periodicals
f) non-series or odd material
g) lists of publications, library lists, bibliographies.

Shelf 3: Regulations, by-laws, Acts, etc.
(Sample: Appendix 1, item 32)

Arrange according to:
i) country
ii) organization and/or department issuing the regulation or law.
Sub-arrange by:
The serial number, or date of the by-law or act, OR the subject matter i.e. whether education act, building by-law or regulation, electoral enrolment law.

Shelf 4: Material on educational research, tests, theory of education, teaching methods, etc. Arrange according to:
(Sample: Appendix 1, items 27-29, 40-42)
i) country
ii) organization or author of the material.
Sub-arrange by:
a) series
b) periodicals
c) non-series or odd material
d) lists of publications, bibliographies, abstracts, etc.

Shelf 5: Material on school buildings, classrooms, furniture.. Arrange according to:-
(Sample: Appendix 1, items 91-99)
i) country
ii) organisation issuing the material
Sub-arrange by:-
a) series
b) periodicals
c) non-series or odd material
d) lists of publications, library lists, bibliographies, abstracts.

Shelf 6: Trade literature, catalogues, advertisements, etc. Arrange by:-
a) building materials
b) furniture
c) school equipment (language labs, visual aids)
d) prefabricated buildings and structures
e) schools (mobile schools, classrooms, laboratories) sub-arrange by level if necessary
f) decorative materials (paints, flooring, etc.)
g) building elements (doors, window-frames etc.)

Inter-Library Loan

Finally, apart from the purchase and exchange of material, facilities are available in many Asian countries for the loan of books and other material, by one library to another. Whilst the concept is not new and indeed has been promoted by Unesco and professional library associations for many years, it does not always work well in practice. For instance, the basic essentials in such a scheme are organised libraries, headed by trained staff, to take responsibility for the loan or borrowing of material, and a delivery scheme.

Since transport is not always available, and libraries tend to be scattered over the countryside, the postal services will be the most used method of delivery. It may be that some organisations will be hesitant about lending material which has to go twice through the postal system, and which may be quite difficult to replace if it is lost or damaged. For this reason documentation centres in some countries may photocopy or microfilm sections of books and periodicals which are required; the lending library may be willing to allow such a service to make use of its article whilst the borrowing library will receive a permanent or semi-permanent copy of the article which can be used for research purposes in its own establishment.

The building research field has often lagged behind other scientific and technical organisations in the arrangement of such a scheme or in participation in an established scheme. One needs only to look at the content of abstracts which are issued by Asian documentation centres to see how little building material is ever contributed. Duplication of material, not to mention research, often takes place unnecessarily in related establishments. Normally, the appointment of trained librarians will lead to professional co-operation, for the training of librarians enables them to see the advantages of co-operation and sharing of resources, and to organise such a scheme of inter-library lending. When the field of documentation is so small, as in school building research, it becomes even more pressing for organisation of library resources both individually and co-operatively.

RR/tf.

Appendix 1

LIST OF ADDRESSES FROM WHICH PUBLICATIONS MAY BE OBTAINED FREE OR ON EXCHANGE

Addresses	Publications
1. The Head Building Research Liaison Service, P.O.Box 2807AA, Melbourne, Victoria, AUSTRALIA. (for the Commonwealth Experimental Building Station, Sydney.)	1. Building abstracts bulletin. (periodical) 2. Special Report (series) 3. Technical Report (series) 4. Notes on the science of building (series)
2. The Librarian, Division of Building Research, Commonwealth Scientific and Industrial Research Organisation, Graham Road, Highett, S 21, Victoria, AUSTRALIA.	5. Technical papers. (series)
3. Central Library, Commonwealth Scientific and Industrial Research Organisation, 314 Albert Street, East Melbourne C2. Victoria, AUSTRALIA.	6. Australian science index (periodical) 7. C.S.I.R.O. abstracts.(periodicals) 8. Pamphlet (series) 9. Bulletin (series) 10. Directory of Scientific and Technical Research Centres. 11. List of publications.(annual) 12. Annual Reports.
4. The Librarian, School of Architecture and Building, University of Melbourne, Parkville, N.2, Victoria, AUSTRALIA.	13. Cross Section (periodical) 14. Tropical Building Studies. (series)
5. Department of Architectural Science, University of Sydney, Sydney, AUSTRALIA.	15. Sydney. University.Department of Architectural Science. Bulletin. (series)
6. Building Research Station, Garston, Watford, Herts, ENGLAND.	16. Current papers; construction series 17. Current papers; design series 18. Current papers; research series 19. Current papers; engineering series 20. Current papers; miscellaneous (series) 21. Building Research Station Digest 22. Library bibliography 23. Notes A, E, N, etc. 24. Quarterly list of publications. 25. Overseas building notes. 26. Tropical building studies.

Appendix 1

7. Chief Librarian, Ministry of Public Building & Works, Lambeth Bridge House, London S.E.1, ENGLAND.	27. Library bulletin.
8. Educational Clearing House, Unesco, Place de Fontenoy, Paris-7e FRANCE.	28. Educational Studies & Documents 29. Statistical reports & Studies 30. African Research Monographs [see its List of Publications]
9. Asian Institute of Educational Planning and Administration, Indraprastha Estate, Ring Road, New Delhi 1, INDIA.	31. Newsletter. 32. Subject list of acquisitions.
10. Central Secretariat Library Ministry of Education, New Delhi, INDIA.	33. Current administration literature. 34. Current education literature. 35. India education abstracts. 36. Publications (of which Nos:166 245, 445, 766 etc. are on School building) [series] 37. Secondary education (periodical) 38. Youth (periodical)
11. The Director, National Buildings Organisation, Nirman Bhavan, 5th Floor, "A" wing, Maulana Azad Road, INDIA.	39. Various reports on the Panel on school buildings 40. Central School Buildings (monograph) 41. Technical Information Series.
12. The Chief Publications Officer, National Council of Educational Research Training, 114, Sundar Nagar, New Delhi 11, INDIA.	42. Annual report 43. N.I.E. news (periodical) 44. The Child (periodical) 45. List of recent publications 46. Proceedings of Meetings.
13. The Librarian, University Grants Commission, Mathura Road, New Delhi, INDIA.	47. Reports of their Building Advisory Commission.
14. The Librarian, Central Building Research Institute, Roorkee, U.P., INDIA.	48. C.B.R.I. abstracts (quarterly)

15. The Library,
Regional Housing Centre,
Djalan Kapt. Patimura 124,
Bandung,
INDONESIA.

16. Madjelis Ilmu Pengetahuan Indonesia,
Scientific Documentation Centre,
Djl. Raden Saleh,
Djakarta,
INDONESIA.

17. Institute for Educational Research
& Studies,
P.O.Box 3071,
Tehran,
IRAN.

18. The Japanese National Commission for
Unesco,
c/o Ministry of Education,
Tokyo,
JAPAN.

19. The Ministry of Education,
Educational Facilities Division,
Administration Bureau,
Tokyo,
JAPAN.

20. Regional School Building Centre
for Latin America,
Aptdo. Postal. 41-518,
Mexico 10, D.F.,
MEXICO.

21. Bouwcentrum,
Postbus, 299,
Rotterdam 3,
NETHERLANDS.

22. Singapore Institute of Architects,
G.P.O. Box 2723,
SINGAPORE.

23. National Building Research Institute,
Council for Scientific & Industrial
Research,
P.O.Box 395,
Preteria,
SOUTH AFRICA.

49. Masalah Bangungan (periodical)
50. Newsletter (periodical)
51. Abstracts
52. Brosur (series)
53. Petikan (series)
54. Annual report.

55. Directory of science libraries
in Indonesia
56. List of periodicals in the
libraries of the Council of
Science.

57. Publications (series)
(on exchange)

58. Development of rural education
in Japan
59. Education in Asia (Min. of Ed.
Research Bureau)
60. Education in Japan (annual)

61. Collection of Laws relating to
public school facilities
62. Development of School Building
in Japan
63. School buildings in Japan.

64. Conescal (newsletter in Spanish
with English and French
summaries)

65. International School Building
News(on equal exchange only)

66. S I A J (periodicals)

67. School Building Series reports
68. Information sheets.

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24. Regional School Building Centre for Africa,
P.O.Box 1720,
Khartoum,
SUDAN.

69. Questionnaire for use in selecting building contractors.
70. R.S.B.C.A. newsletter(periodical)
71. List of publications received in the library.(periodical supplements)

25. Editions Girsberger,
Kirchagasse 40
Zurich,
SWITZERLAND.

72. International asbestos cement review (strictly on exchange)

26. ECAFE,
Sala Santhitham,
Bangkok,
THAILAND.

73. Asian bibliography(semi-annual)

27. Thai National Documentation Centre,
Bang Khen,
Bangkok,
THAILAND.

74. A.S.R.C.T.newsletter
75. Journal holdings...List No.1
76. List of Scientific reports relating to Thailand.

28. The Director,
Unesco Regional Office for Education in Asia,
P.O.Box 1425,
Bangkok,
THAILAND.

77. Bulletin (semi-annual)
78. Reports of various Unesco regional meetings.
79. Central clearing house for Unesco publications in Asia.

29. The Director,
Division of Educational Facilities Planning,
Education Department,
State of New York,
Albany, 1. N.Y.
U. S. A.

80. Series of numbered untitled booklets on school buildings
81. Fire escapes and stair towers (monograph)
82. Manual of planning standards for school buildings & supplements
83. Regulations of the Commissioner of Education. Article 20: School Buildings and grounds.

30. The Library Director,
Texas A & M University,
College Station,
Texas,
U.S.A.

84. Various Research reports of their engineering experiment Station.(on exchange or else to be paid for)

31. National Council on Schoolhouse Construction,
409, Education Building,
Michigan State University,
East Lansing, Michigan,
U. S. A.

85. Guide for planning school plants (monograph)(strictly on equal exchange
86. Planning facilities for higher education (strictly on exchange).

32. Educational Planning Service
Colorado State College,
Greely, Colarado,
U. S. A.

87. Designs for small high schools (monograph)
88. New shapes for new schools (monograph)

33. Department of Education,
State of Michigan,
Lansing, Michigan, 48902
U. S. A.

89. Bulletin (series)

34. University Facilities Research Centre,
913, University Avenue,
Madison, Wisconsin 53715
U. S. A.

90. Space for audio-visual large-group instruction. (monograph)

35. Educational Facilities Laboratories,
477 Madison Avenue,
New York, N.Y.10022,
U. S. A.

91. Bricks and mortarboards
92. Building and facilities for the mathematical sciences
93. Case studies of education Facilities (series)
94. EFL college newsletter (irregular series)
95. Profiles of significant schools (series)
96. Technical report (series)
97. To build or not to build (mono.)
98. The cost of a schoolhouse(mono.)
99. List of publications available.

36. Centre for Housing, Building & Planning
Bureau of Social Affairs,
United Nations,
New York,
U. S. A.

100. Documents of sessions of the Committee on Housing, Building and Planning of the economic and social Council of the United Nations.
101. Reports, articles, etc.

37. School Planning Laboratory,
School of Education,
Stanford University,
Stanford, California,
U. S. A.

102. Community Colleges in urban settings (monograph)
103. A study of studying. (monograph)
104. Also some items on Administration monograph series
105. S P L reports (series)

38. School Construction Systems Development,
770, Pampas Lane,
Stanford, California,
U. S. A.

106. Report (series)

39. Bureau of Education Facilities Technology,
Department of Health, Education and Welfare Office of Education,
Washington D.C.20202,
U. S. A.

107. Bibliographies: OE series
108. Bulletin (series)
109. Special Publication (series)

Appendix 2 (letter "a")

TELEPHONE: 86462, 86471, 86492, 86454 Cable: ARI

ASIAN REGIONAL INSTITUTE FOR SCHOOL BUILDING RESEARCH
(Sponsored by UNESCO)
P.O. Box 1368
RACECOURSE, BULLER'S ROAD, COLOMBO 7, CEYLON

REF:
Letter(a) requesting an institution to make available its publications free without offering a publication in exchange.

Dear Sirs,

This Department is engaged in the planning of school buildings for the Miniatry of ..... and we should very much appreciate it if you could place our name on your mailing list to receive the publications of your Department/Institution as follows:

*(The enclosed copy of our Work Programme for ..... will indicate how) these publications have a direct bearing on our work.

Yours faithfully,

*To be added when a Work Programme can be drawn up. Otherwise, delete.

Appendix 2 (letter "b")

Dear Sirs,

We should like to obtain for our research programme a copy of your publication/s:

I enclose a copy of the Information Bulletin /Work Programme of our Institute which contains a list of our publications. If you would like to exchange publications please let us know and we can place your name on our mailing list.

Yours faithfully,

Director

RR/ns

Appendix 2 (letter "c")

TELEPHONE: 86462, 86471, 86482, 86484

Cable: ARISBR

ARISBR

ASIAN REGIONAL INSTITUTE FOR SCHOOL BUILDING RESEARCH

(Sponsored by UNESCO)

P. O. Box 1368

RACECOURSE, BULLER'S ROAD, COLOMBO 7, CEYLON

REF:

Dear Sirs,

Thank you for your publication/s* which we have this day received. We very much appreciate your making this/these available to us.

Yours faithfully,

* *(List of publications received)*

Appendix 3

SAMPLE WORK PROGRAMME FOR PUBLICATION BY A SCHOOL WORKS UNIT
(in P.W.D., Ministry of Education, etc.)

The School Works Unit, before it can usefully publish a work-programme will, of course, need to make surveys of school types required and estimates of numbers of schools needed and their location. Coupled with this is a need to make surveys of the availability of materials so that further investigatory work can be put in hand.

In order to produce a document of the type suggested below it will be necessary for the officer in charge of the School Works Unit to anticipate and plan the main elements of the work he expects to be doing in the coming year.

WORK-PROGRAMME - SCHOOL WORKS UNIT, FOR 1968

1. General

The School Works Unit approaches its annual programme through studies of required building types made with the assistance of specialist inspectors. Where necessary, further investigatory work into materials and construction is initiated in the State Building Materials Laboratory and in the Civil Engineering Faculty of the University.

2. Studies

a) A study in collaboration with the Inspectorate of Technical Education to produce schedules of accommodation for new, junior technical schools.
3 months, commencing February.

b) A study in collaboration with the Civil Engineering Faculty of the University of the suitability of CINVA ram blocks using local soil and cement, for use in single storey primary schools.
6 months, commencing April.

c) A study in collaboration with the Science Inspectorate of improving science laboratories in relation to new teaching schemes.
3 months, commencing July.

d) Participation in the Standards Institute sub-committee for the production of standards for primary school furniture - continuous: 1968.

3. Costs

Elemental analysis of the Schools Works Unit's standard secondary school with a view to accomplishing cost reductions.

3 months, commencing August.

4. Design

a) Design new junior technical school.
   4 months, commencing July.
b) Design new Intermediate College.
   4 months, commencing January.
c) Commence design revised Secondary schools based on cost study.
   4 months, commencing November.

5. Construction

a) Continue contract management of X new primary schools - continuous.
b) Continue contract management of Y new secondary schools.

6. Miscellaneous

a) School Works Office to attend seminar of School Buildings at _____. July.
b) Participate in discussions with ARISBR officials concerning Development Group work.

7. Documentation

Working papers and/or drawings will be available to those interested in 2(a), (b) & (c); 4(a), (b).

Request to be added to ARISBR's mailing list:

Dear Madam,

I should appreciate it if you would add my/our name to your mailing list to receive the following:

Occasional Papers: School Building

1. Climate and School Building Design in Java.
2. The Shading of School Buildings in South East Asia.
3. Comparative Anthropometric Data for Use in Indian Schools.
4. Comparative Anthropometric Data for Use in Thai Schools.
5. Comparative Anthropometric Data for Use in Indonesian Schools.
6. Comparative Anthropometric Data.
7. Comparative Study of Multi-Purpose Rooms in Education Buildings.
8. Comparative Anthropometric Data for Use in Philipine Schools.
9. Environmental Control in School Buildings through Planting.
10. Primary School Buildings in Asia.
11. School Building Development Groups.
12. A Primary school Design Workbook for Humid Asia.
13. A Method of Reducing Classroom Requirements in Primary Schools in Asia.

Buildings for Education

Vol.1, no.1, 1967	Vol.2, no.1, 1968
Vol.1, no.2, 1967	Vol.2, no.2, 1968
Vol.1, no.3, 1967	Vol.2, no.3, 1968
Vol.1, no.4, 1967	Vol.2, no.4, 1968

The address to be used for forwarding publications as they are issued is as follows:-

(Fill in your current complete address)

Yours faithfully,

The Documentalist,
Asian Regional Institute for School
Building Research,
P.O.Box 1368,
COLOMBO,
Ceylon.

BIBLIOGRAPHY

Appendix 5.

1. Publications available from Unesco, Division of Libraries, Documentation and Archives, place de Fontenoy, Paris-7e, France. Many are made available free-of-charge.

1. GUIDE de présentation de manuscrits. Projet de guide bibliographique. Paris, Unesco. 113p.

2. GUNTHER, ALFRED. Microphotography in the library. Paris, Unesco, 1962. Reprinted from: Unesco. Bulletin for libraries, v. 16, no. 1 (Jan/Feb) 1962.

3. HEINTZ, INGEBORD. The organization of the small public library. Paris, Unesco, 1963. (Unesco. Manuals for libraries, 13.)

--- [Also available in Franch]

4. LISTE de base d'ouvrages de référence en français pour écoles polytechniques et techniques du Fonds spécial: bâtiments et travaux publics. Paris, 1965. (UNESCO/LBA/SF/16)

5. PLUMBE, WILFRED J. Storage and preservation of books, periodicals and newspapers in tropical climates; a select bibliography. 1964. 12p. mimeo.

6. REDMOND, D. A. Small technical libraries; a brief guide to their organization and operation. Reprinted from: Unesco. Bulletin for libraries, v. 18, no. 2, 1964. 33p., illus.

7. UNESCO. Bulletin for libraries, v. 15, no. 5(Sept/Oct) 1961: Item 354. Construction of libraries in tropical countries, by J. Rousset de Pina; Item 355. Furniture and equipment in tropical libraries, by W. J. Plumbe.

11. Publications to purchase, giving an elementary and straightforward treatment of library organization.

8. ALLEN, J. The organization of small libraries; a manual for educational institutions in tropical countries. London, Oxford, 1961. 80 p. [Price not known, but probably obtainable through any large English bookseller.]

9. COLLISON, R. L. The treatment of special materials. 2nd ed. London, Aslib, 3 Belgrave Square, London, S.W.1., 1955. 104p.

10. DAVINSON, D. E. Periodicals; a manual of practice for librarians. London, Grafton, 1960. 165p.

11. MASON, D. A. A manual of non-book materials in libraries. London, Association of Assistant Librarians, 1959. 115p.

12. MILLARD, PATRICIA. Modern library equipment. London, Crosby Lockwood, 1966. 45/- stg.

13. WALKER, J.R.A. Information bulletins in special libraries; background, problems and practice. London, The Library Association, 7 Ridgmount Street, Store Street, W.C.1., 1966.

III *EDUCATIONAL BUILDING ABSTRACTS*

Aa1 - INFORMATION (GENERAL)

95. EVANS, B AGARD. The proposed world institute for documentation of housing, building and planning. Aslib. *Proceedings*, v.20, no.3 (Mar)1968, p.162-170.

In August and November 1966, the Economic and Social Council of the United Nations approved in principle the proposed establishment of an International Institute for Documentation on Housing, Building and Planning at New Delhi, India, and the Secretary-General of the United Nations appointed an Expert Group to prepare a detailed technical report on the functions and operations of the Institute. On 7th September 1967 the Group submitted a report to the Secretary-General which has since been incorporated in a draft resolution put forward to the Economic and Social Council in May 1968.

The Group was asked to define the objectives and scope of activities of such an Institute, and among other things to make recommendations for physical accommodation, staff and equipment.

The Group concluded that the Institute should select and make known documentation for its unique contribution and lasting value to the field of housing, building and planning. It should do this through *Digests* giving the gist at some length of the best primary documentation available from world sources, and averaging about 100 digests per month. It should supplement this with monthly lists of *annotated references* to documents which make useful contributions but do not merit full treatment. It could republish *abstracts* prepared by other bodies and selected by the Institute. Eventually it could also prepare *syntheses* of specific subjects, reviewing the range of valuable primary and secondary documentation. These four types of publication would be issued in four languages, English, French, Russian and Spanish.

Aa1 - INFORMATION (GENERAL) (contd.)

95. EVANS, B AGARD. The proposed world institute for documentati... of housing, building and planning. (contd.)

It was also recommended by the Group that the Institute be highly selective in *collecting* primary documentation, and that this be assisted by national centres or other bodies or individuals. Secondary documentation prepared by other bodies would also be collected on a world-wide basis. The institute would need channels of *dissemination* at national levels since it could not hope to deal with individual inquiries. National documentation centres dealing with the subjects of the Institute could be nominated by member governments and would be responsible for onward transmission and further dissemination of the information in national borders. Contributions could also be made to this dissemination network through regional economic commissions, international bodies and other specialized documentation centres.

Inquiries on specific subjects would also be transmitted through these national centres.

Suggested functioning sections for the Institute would be: library, information section, digests section, printing section, special relations and administration. The total proposed staff would be 119, 36 professional, 43 clerical or specially skilled, and 40 others.

It is not foreseen that the Institute would receive a regular budget from UN. It would have to depend on voluntary support from member countries and any contributions which may be available from various funds. Three phases in the establishment of the Institute are foreseen: Phase I:Preparatory, including establishing contacts and obtaining financial contributions; Phase II:Growth phase, covering recruitment of staff, procurement and installation of equipment, arrangement of supplies of literature; Phase III:Operational. Considering the need in Asia for co-ordination and dissemination of information on all aspects of building, this Institute could make a valuable contribution to development of building research in Asia. Since its function will also be to call attention to gaps in knowledge requiring further investigation the Asian countries will have strong obligations, not only to support it financially, but also to provide centres through which it may be contacted both to contribute knowledge and results of national research and also inquire about results of research which may be applicable to particular problems in the building industry in the country itself.

Aa7 - EDUCATION

96. WOLFF, MAX. The educational park concept. *Wilson library bulletin* v.42, no. 2(Oct) 1967, p.173-5, 232.

The author of this article is a sociologist with wide experience in teaching who sees educational parks as a possible assisting factor in restoring the educational standards of schools in the centres of large cities. The educational park is not merely a cluster of school buildings on one site; its unique ingredient is its centrally organized common facilities serving all the schools on the campus.

These facilities can be used, not only by the schools during the day, but also by the local adult community after school hours (*see* Abstract no.73 of *Buildings for Education*, v.2, no.1). The movement of people into the cities is a world-wide phenomenon but in the highly industrialized cities this movement is far advanced and the cities are spilling over into hundreds of miles of surrounding metropolitan area. Those who are not hindered by socio-economic restrictions are moving away from industrial centres, whilst the poorer people are forced to stay in the inner cities. The crisis in the inner city is compounded of dwindling tax revenues and increased need for social services, as against uncontrolled and unbalanced growth in the newer areas. Intergroup tension rises as the ghettos of the different elements in the community confront one another.

The author sees the educational park as one approach to solutions to the critical problems of stabilizing population changes, encouraging citizen participation in community life and easing intergroup tension, while at the same time improving educational standards. It could become the cultural centre of the community, it can bring together children from various racial, religious and socio-economic clusters, and stabilize the community particularly in the older centres where fear of declining standards of public education causes flight to newer areas for those who can afford it. Good teachers will be attracted to high quality educational park facilities, which will in turn provide equal educational opportunities for the children as compared with those from "better" areas.

Aa7 - EDUCATION (contd.)

96. WOLFF, MAX. The educational park concept. (contd.)

The park will also serve as the community's cultural centre; parents and others will come for adult education or retraining classes, for the use of the library, and for professional entertainment in the theatre (which can be provided in the auditorium as greater use can justify its inclusion in the plan for an educational park).

The educational park idea is now being given serious consideration in large urban areas of the United States and Canada; 65 parks have been developed in the past four years in the United States. Many existing schools could be used immediately to form the core of educational parks where there are good buildings already clustered or close to each other. It may only be necessary to change the grades served by these schools or to convert some of the larger common or special rooms to classroom spaces. As the park grows other local schools coming into the park arrangement could sell superseded buildings on far out sites, or turn over the buildings to other communal uses.

Ab9 - PROTECTION, PROOFINGS, INSULATION

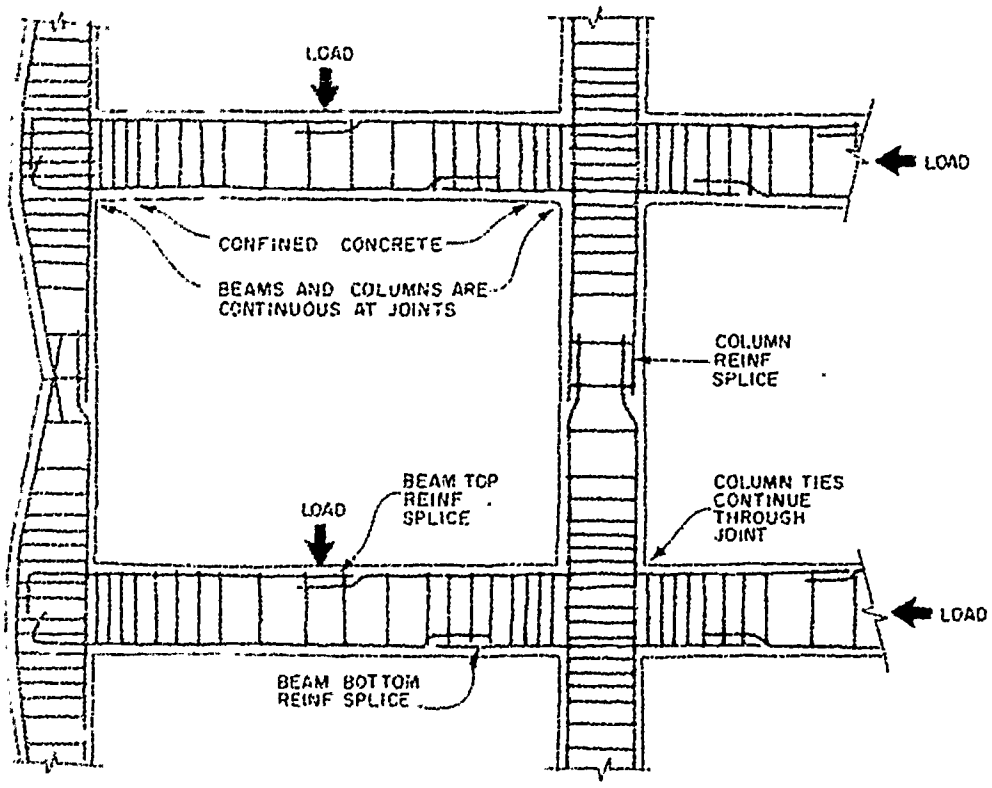
97. WING, WAYMAN C. Concrete frame is made "flexible" to absorb earthquake loads. *Architectural record*, v.143, no.4 (Apr) 1968, p.191-194, illus.

The recent news of catastrophic earthquakes in Iran and the Philippines, and earlier in India, Venezuela, Chile and Sicily make it evident that architects and structural engineers should have at least a general knowledge of what seismic design involves. This article briefly reviews the nature of earthquakes and the structural approaches for resisting their effects in buildings. It also describes the design for a 21-storey concrete frame for a new hotel, based on flexible, shock-absorbing, ductile-frame concepts.

AL9 - PROTECTION, PROOFING, INSULATION (contd.)

27. WING, WAYMAN C Concrete frame is made "flexible" to absorb earthquake loads. (cont'd.)

Figure 1, reproduced from the text of the article, indicates how the choice of framing system will affect the lateral force for which it must be designed.



To make the concrete frame "flexible," the columns and beams were designed with maximum strength at the column and beam joints, while points of contra-flexure were weakened relatively. An analogy of behavior of the joints might be the balance wheel of a watch (right).

A moment-resisting frame can take considerably more earthquake load than a more rigid shear wall type of structural system. For example, with the box system shown below, the horizontal force factor K is 1.33, while for the moment-resisting space frame K is 0.67, or only half as much. This means that—due to its built-in ductility—the moment-resisting space frame can be designed for half as much lateral load as the box system.

Total Base Shear, V=KCW
K is determined by the structural system.
$C = \frac{0.05}{3\ T}$ where T is the fundamental period of vibration of the structure.
W = weight of building.

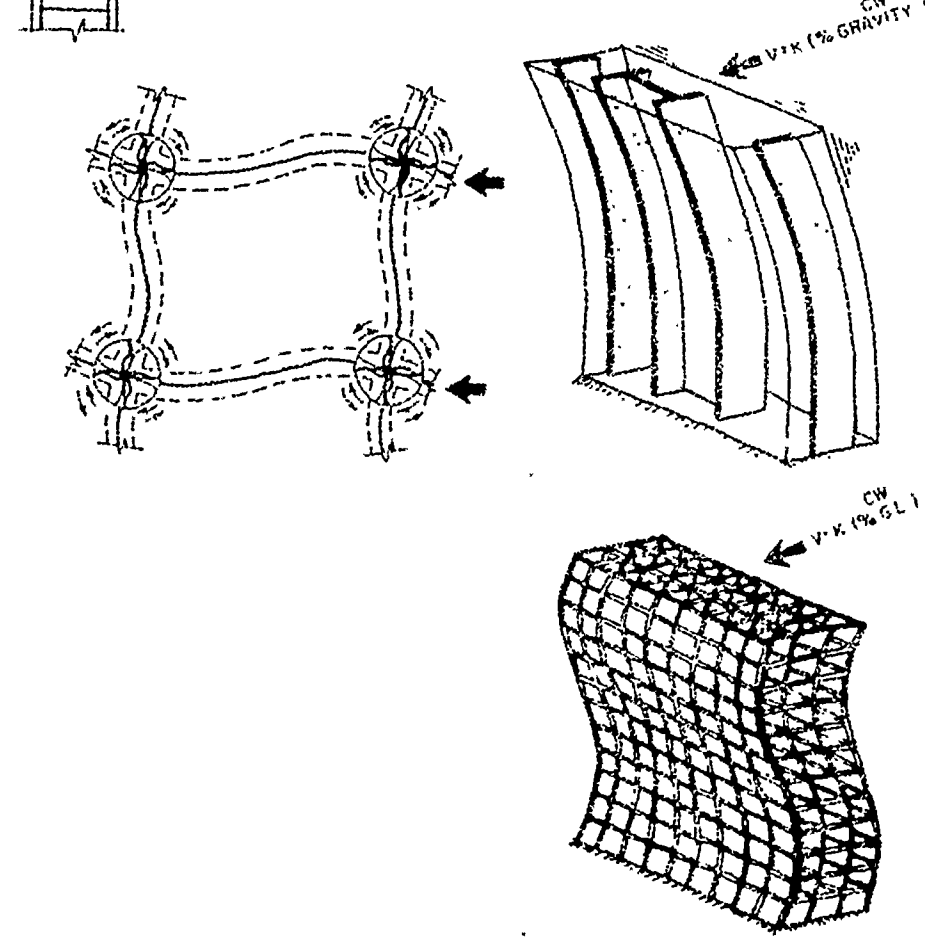
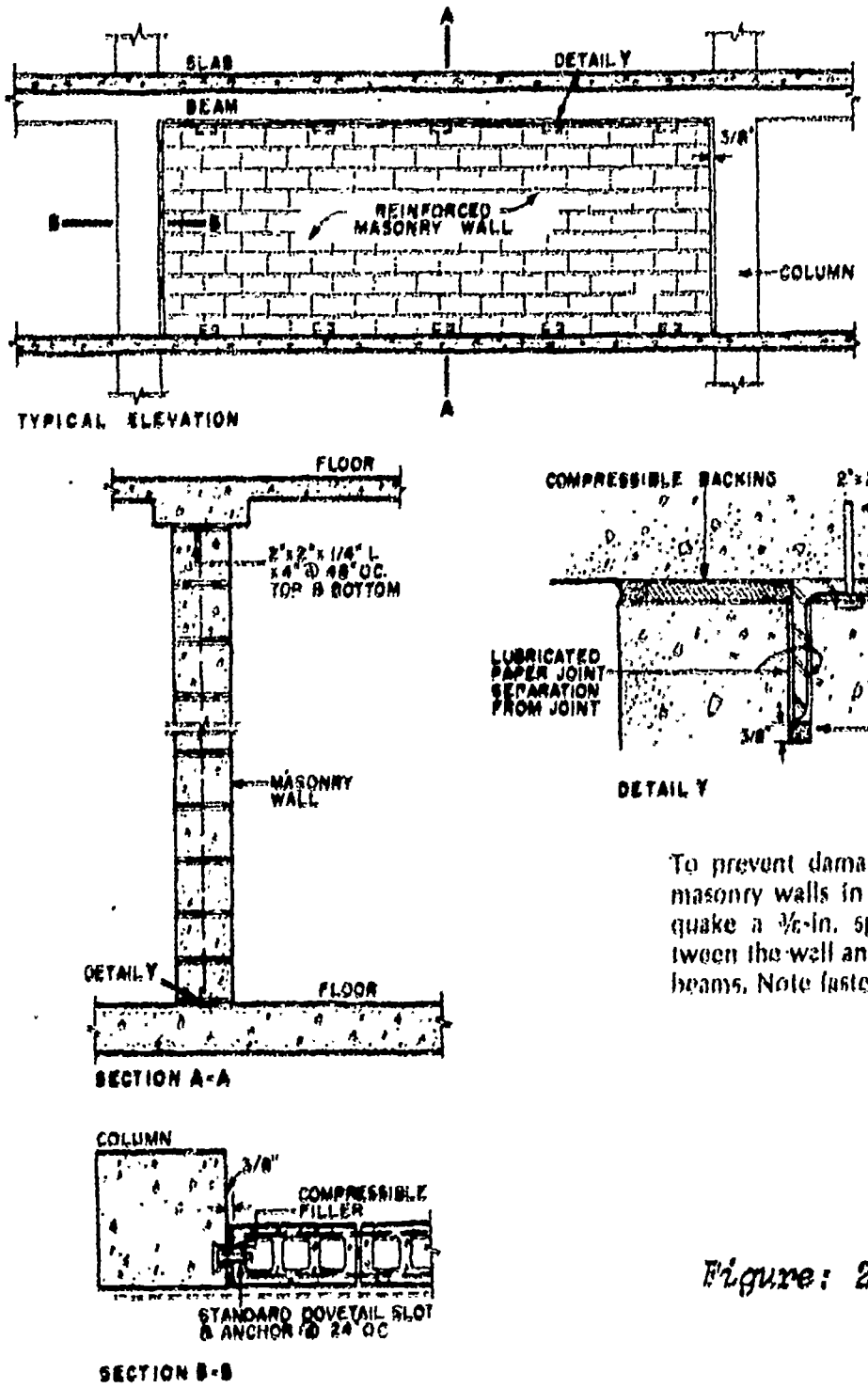


Figure: 1

Ab9 - PROTECTION, PROOFINGS, INSULATION (contd.)

97. WING, WAYMAN C Concrete frame is made "flexible" to absorb earthquake loads. (contd.)

It is far more economical to design a building with an energy-absorbing, moment-resisting ductile frame than with a stiff rigid frame. Energy absorption in a ductile frame is accomplished by converting the kinetic energy of the earthquake imparted to the structure into strain energy. The idea is to design into the frame, usually in the beams, areas where this strain can take place without resulting in a complete failure. Figure 2, also produced from the article, shows how this can be done.



To prevent damage to the interior masonry walls in case of an earthquake a ½-in. space was left between the wall and the columns and beams. Note fastening details.

Figure: 2

Ba6 - INDUSTRIALISED BUILDINGS, SYSTEMS, COMPONENTS

98. INDUSTRIALISED building, design and productivity. *Overseas building notes*, no.123 (Feb) 1968, illus., graphs, bibl.

The notes in this issue of *Overseas Building Notes* are based on papers by Donald Bishop, Director of Quantity Survey Development, Ministry of Public Building and Works and will be of interest to those countries who may be thinking of the introduction of industrialised building techniques. Since the essence of such techniques is the production of long runs of standardised components or the assembly of prefabricated units on mass-production lines, only a small number of systems can exist in any one country, since a building programme can offer only a limited capacity to a few manufacturers.

The first part of the notes examines the experience of Sweden, France and Russia in the design and use of industrialised buildings. An interesting comment is that in each country industrialisation of the building industry has been brought about by the need for additional capacity, rather than a desire for lower costs.

One other comment worth noting is that the traditional building industry has responded to the challenge by adopting features of industrialised systems - better integration of design and production, more effective supervision - and thereby increased its own efficiency.

The notes lay stress on two important issues; firstly, the standardisation of performance requirements of components and technical details; and secondly, the continued investment of money, skill and effort in systematic and long-term development. In the absence of these circumstances the development of systems has stopped when each system was shown to be technically sound and economically viable. However where development work has continued to ensure that design, production and work on site are efficient such systems have continued to improve their performance and success.

The second part of the paper discusses design and productivity. It emphasises that the designer can produce designs that are easy to build and those who concentrate on a particular building type, for example school buildings, have the opportunity to encourage and sometimes promote the introduction of new techniques and new components.

Ba6 - INDUSTRIALISED BUILDINGS, SYSTEMS, COMPONENTS (contd.)

98. INDUSTRIALISED building, design and productivity. (contd.)

So far as the building industry is concerned investment of capital, management and technical skills is worthwhile only when there is reasonable certainty of continuity of work. The paper comments on the substantial improvement of performance with repetition in other industries, notably the aircraft industry; on long production runs the operatives come more expert, management begins to solve organisational problems, and engineers improve their designs, all of which can be applied to the building industry.

These circumstances are discussed in some detail and the implications of the introduction of new materials, components and techniques, the design of industrialised buildings, development and effective control are also dealt with.

99. NENK swings into action. *Industrialised buildings, systems & components*, v.5, no.4 (Apr) 1968, p.30-41, illus.

Description of two different buildings in architectural terms recently completed using the NENK method of building are commented on by the designers and contractor.

NENK is an open modular method of building incorporating the advantages of industrialised techniques and construction and is uniquely adaptable to many varied building types which, until now, have been restricted to design by traditional methods.

The components consist of a light steel structure and space frame and an envelope offering a wide range of component sizes in several materials. The internal partitions and division walls are cellular core plaster board or lightweight aerated concrete units. There is a wide choice of finishes and services within the building.

Ba6 - INDUSTRIALISED BUILDINGS, SYSTEMS, COMPONENTS (contd.)

100. WEBB, T. L. The evaluation and investigation of industrialized building methods. *Public works roads and transport*, June 1966, p.47-51.

Dr.Webb is Director of the National Building Research Institute, South Africa. He defines evaluation as "that process whereby it is established before using it, whether a given method of industrialised building will prove satisfactory or not."

A full evaluation would cover not only the technical aspect but also the equally important aspects of costs, manpower implications, construction time and the overall suitability of a system for a particular application.

Whatever the type of system building it is necessary to evaluate it as a whole in the form that it is to be used. This is the only way of anticipating serious problems which frequently develop when components satisfactory in themselves or when used with other components, are used or made with incompatible materials, or when the component is used in an unsuitable way.

Other important factors are the managerial and organisational ability of the manufacturer and the user. The ability of the local authority to accept drastic change in the traditional methods of planning, administering and executing building for industrialised building involves long term planning, and may require changes to be made to the building regulations. To avoid duplicating of specialist staff there is a need for a national system of evaluation and assessment of industrialised or other similar systems, thus not only permitting a potential user to establish whether the method is acceptable but also giving guidance as to any imitations to its use.

Dr.Webb refers to the "Agrément" of France administered by the French Building Research Organisation, which is statutory (no technique in France may be used unless it has been examined) and to the systems introduced in the United Kingdom and the Netherlands.

In discussing the need for such a central organisation for South Africa, Dr.Webb gives a comprehensive list of objectives which any national system of evaluation should meet.

Ba7 - BUILDING ECONOMICS

101. CANNELL, JOHN B. Tendering procedures and contractural arrangements. *The Building economist*, v.6, no.4 (Feb) 1968, p.101-106, 109.

The process of selecting a contractor and the subsequent contracting involvement is becoming increasingly complex. The author of this article gives a lucid explanation of these complexities. He describes the object of any tendering procedure as being the initiation of a process to select a contractor who is most likely to give a client or building owner what he wants, when he wants it, at an attractive price.

Having selected a contractor then it is normal to enter into a contract for the performance of the work. Mr.Cannell discusses the advantages and disadvantages of the various forms of contract, open competition, cost plus contracts, packaged deal contracts, negotiated contracts, etc., and also discusses alternative methods available to the client in the selection of a contractor.

The traditional form of open competition tendering and the selection of the lowest bid does not always produce the best results, either in terms of time or in quality of work and the alternative methods discussed by the writer may assist in overcoming this.

Dt - MATERIALS: ADHESIVES, JOINTING

102. FLEMING, C. J. *and* KING, G. E. M. The development of structural adhesives for three original uses in South Africa. *Bulletin Rilem*, no.37 (Dec) 1967, p.241-251, illus., graphs.

The paper outlines the development of epoxy adhesives for South African conditions. It discusses preliminary investigations undertaken to arrive at a suitable formulation and goes on to discuss three specific cases of original use:

i) the gluing of precast concrete units in the form of an arch with epoxy resin;
ii) gluing of brickwork in panels to reinforced concrete framed buildings;
iii) strengthening of existing reinforced concrete beams by gluing steel plates to beam faces.

Dt - MATERIALS: ADHESIVES, JOINTING (contd.)

102. FLEMING, C. J. *and* KING, G. E. M. The development of structural adhesives for three original uses in South Africa. (cont'd.)

The second case would appear to be most applicable to school building. The gluing of brick panels to the columns with epoxy adhesives enables then to bound together as a composite frame. The significance of this is that the slab can be designed to carry itself, supported on the columns only and providing the brick panels can be glued to the columns, they will carry themselves and assist with the live load.

Two blocks of medium-sized flats have been erected near Durban employing this principle. Detailed cost analysis of this construction and orthodox construction indicates that a significant saving in costs can be effected by the use of the principle outlined above.

(3) - SECONDARY ELEMENTS: WINDOWS, DOORS, FLOORS, ETC.

103. TACK, C. H. Window joinery in service; excessive moisture content points to design defects. *Building,* v.214, no. 14 (5 Apr) 1968, p.135-136, illus.

The widespread incidence of excessive moisture in timber windows which frequently tend to decay, points to design defects of the unit.

The large proportion of high moisture content in the opening sashes compared with the fixed part of the window suggests that water is penetrating through the joints due possibly to the racking of the opening sashes when used.

It is of interest to note in two areas where the windows were examined and where it was found that there was only a small proportion that gave a high moisture content that in these areas the timbers of the windows were slightly larger in cross section than elsewhere, the hinges were substantial and of good quality and the workmanship was of a high standard.

Condensation was found to be a contributory cause of decay. Chambering or splaying of horizontal rails and the possible re-introduction of condense drainage channel and weep holes will assist in preventing or alleviating the cause of decay.

(97) - EDUCATIONAL BUILDINGS

104. KIKUTAKE, KIYONORI. Children's land school in a grove. *Japan architect*, no.136 (Nov) 1967, p.28-34. illus.

The article describes a small residential school in which the children's dormitories (15 children each) are scattered in a small individual buildings in a wooded site. The domitories appear also to act as teaching spaces although much of the time is spent outdoors on the land. The result appears to be a spatially economic school in a setting which will appeal to children both visually and socially.

105. The NATION'S school of the month; Hithergreen Middle School, Centerville, Ohio. *Nation's schools*, v.80, no.2 (Aug) 1967, p.53-5, illus.

It is increasingly recognised that the traditional grouping of children into grades and classes does not make provision for matching the teaching programme to the level of achievement of individual children in various learning activities. While some children in a given grade or class may be below the average achievement in a given activity some may be above the average. Children who may be of the same level of achievement in one activity may be at different levels in another activity. There is also a difference in the speed of learning among children of the same age.

These individual differences have prompted educationists to evolve methods of organising teaching involving the formation of groups of varying sizes and adopting methods of programming for individual children.

These methods have demanded the abandonment of uniform-sized classrooms and provision of spaces where large or small groups can meet, or individual learning take place, and where facilities exist for teachers to work in teams with plenty of opportunities for constant interaction between teachers and also between teacher and pupil. There appear to be two major approaches to the problem of providing different sizes and kinds of space that demand these teaching requirements:

(97) - EDUCATIONAL BUILDINGS (contd.)

105. The NATION'S school of the month. (contd.)

1) creation of different kinds of permanent spaces to accommodate the different needs are found in schools like the Grove Street Elementary School in Lexington, Massachusetts;
2) creation of space that can adapt to different educational demands because there are no internal walls as in Curzon City Elementary Schools, Michigan, or because the walls can be moved as in Englewood Elementary School, Florida.

The second solution, that is, provision of unbroken space that can be used in many ways seems to be the one that is gaining popularity. It is a school which provides such space that is discussed in the above article.

Hithergreen Middle School is really a one-room school but quite different in its functions and structure from the old one-roomed schoolhouse. It is not meant for an all age school where each small class is a unit for all activities, and where all such classes were taught by one teacher. It is a one-roomed house designed for formal teaching in small and large groups, informal teaching with or without teacher participation, and co-operative pupil activity guided by the teacher. It consists mainly of three teaching centres, a practical art centre and an administrative centre. "In the centre is a circular commons area with a curved arc at one end, flexible partitions running along the arc of the circle close off the commons for large classes and band rehearsals. A circular gym curves into the commons, while its brick exterior wall continues as an interior separation."

Teachers arrange the furniture as the needs demand. Noise is not a problem because of complete carpeting of floors and the use of acoustic baffles. Bright and matching colours give life and cheerfulness to the building.

The school has three grades-six to eight-and the design capacity of the building is 600. This is built on a site 15.3 acres and costs U.S.$15.30 per sq.ft. With a cost per pupil place of U.S.$1,220 buildings of this type, though maybe efficient educationally, are incompatible with the economic situation of the developing countries of Asia unless other means are found to adapt educational specifications with other design solutions.

AUTHOR/TITLE INDEX

Note: Numbers refer to abstracts and are continued on from v.2, no.2

SUBJECT INDEX

Note: Numbers refer to abstracts and are continued on from v.2, no.2

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