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(Abstracts of Recent Publications on Foreign Housing and Planning)

Compiled by the

International Housing Activities Staff,
~~Office of the Administrator~~
U.S. Housing and Home Finance Agency,
" "

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AIDED SELF-HELP HOUSING

1. "Rebuilding 2,100 Greek Villages" by George A. Speer, in Field Reporter, published by the U. S. Department of State; Vol. 1, No. 5; March-April 1953. p. 28 ff.

The former Housing Adviser to the Greek Government (ECA Mission) reports on his experiences in the reconstruction of villages in Greece after the war. See another article by the same author dealing with the same subject digested in No. 36 of "Highlights."

By August 1950, 14,000 families were able to move into reconstructed homes. By the end of November 1950, 46,000 additional homes were completed and another 30,000 nearly finished. In all these rebuilt villages, self-help played a substantial part.

BUILDING CODES

2. Small Sewage Treatment Works published for the British Standard Code of Practice by The Council for Codes of Practice for Buildings; Construction and Engineering Services; London, 1953. 25 pp. Price 5s.

This draft of a code has been prepared by a committee of the Institution of Municipal Engineers. It deals with the methods and plants used to treat domestic sewage from small groups of houses or individual institutions where a connection to a public sewer is impractical. The text deals briefly with the British standards of materials, appliances, and components and discusses design aspects, the filling of filters, inspection, and maintenance. Several plans for various types of septic tanks are included.

3. London Building (Constructional) By-Laws, 1952 published by the London County Council.

The text of this new building code (51 pages) and an explanatory memorandum (14 pages) deal with the legal requirements of construction. In addition to the structural use of steel, reinforced concrete, and timber, a large number of building materials are specifically admitted. It is stated that the use of other materials, not specified in the code, may be approved by the Council upon application. However, such decisions will be granted only to each particular case on its merits.

In addition, the following documents have been received:

Water Supply; British Standard Code of Practice CP 310 (1952); published by the British Standards Institution, 24 Victoria Street, London, S.W.1. 69 pp. Price 6/-.

Air-Cooled Blastfurnace Slag; Coarse Aggregate for Concrete; British Standard 1047; 1952. Published by the British Standards Institution London, S.W.1. 20 pp. Price 4/-.

Central Heating by Low Pressure Hot Water; Draft Code 341.300, London 1953. Published by the British Standards Institution, London, S.W.1. 112 pp. Price 15/-.

Preservative Treatments for Timber Used in Buildings; British Standard Code of Practice, CP 112.100 (1952) General Series, London. British Standards Institution, 20 pp. Price 3s.

Footings for Houses, Flats, and Schools of Not More Than 2 Storeys by David V. Isaacs, Commonwealth Experimental Building Station (Department of Works and Housing), Sydney, Australia, 1952. Special Report No. 8, 45 pp. Price 3s.

BUILDING MATERIALS

4. "Sprayed Foam Concrete" (Une Machine à Bâtir, Couvrir, Enduire) by Géo Vacher in Bâtir, No. 27, Paris, December 1952. pp. 12-17. (In French).

A new process of spraying foamed concrete is said to combine the qualities of reinforced concrete with those of foamed and sprayed concrete. To the usual mixture of sand, cement, water and perhaps of lime or plaster, a foaming agent called "teepol" is added which is a synthetic detergent obtained from paraffin. This mixture is subjected to air pressure of 2.5 kg and then blown on the surface of a wall. It is stated that the plasticity and lightness of the mixture permit the use of a rather low pressure and that it can be applied to various types of forms; for example, to an inflated rubber shell. The article describes the application of this process in Senegal, Morocco and, on an experimental basis, in France proper. A large inflated dome of rubber has been used as a form which has been reinforced by a net of bent steel rods and sheet metal. On this structure, two layers of foam concrete are blown, varying in thickness from 10 cm at the bottom to 5 cm on top. The cost of such a structure having a surface of 50 square meters and providing two dwellings, separated by a partition wall inside, has been estimated at about fr. 1,200,000 (equivalent to \$3,500).

An alternative method starts with the steel form and uses jute as a substructure against which the two layers of concrete are blown. In other cases, a lattice work of bamboo strips (lamelles) have been interlaced with steel rods. It is stated that hemispheric or parabolic structures of this kind are used in Africa and that the simple, quick, and inexpensive method of construction is being tested in France.

5. Gas Concrete, Foamed Concrete, Lightweight Lime Concrete. Test results and data by Otto Graf, Stuttgart. Translated from German by the Cement and Concrete Association, London, February 1953. 122 pp.

The purpose of this publication is mainly to find an answer to the following questions: "How are gas concrete, foamed concrete, and lightweight lime concrete produced?" "What technical properties can be guaranteed with these building materials?" and "What conditions must be observed?"

On the basis of elaborate tests, it is stated that gas and foamed concretes, which are very satisfactory in use and can be supplied within a short time, can best be obtained after curing in high pressure steam. Curing in the air is said to produce satisfactory products only if the products are suitably stored for a long period. Also, lightweight lime concrete, according to the same source, has achieved great significance. It is now manufactured to an increasing extent with Swedish oil shale under the name "Ytong".

6. "Bamboo Construction in the Cameroons" (Construction Au Cameroun) in Bâtir, Revue Technique de la Fédération Nationale du Bâtiment et des Activités Annexés, No. 27, December 1952. pp. 47-51. (In French).

"This article is based upon a larger report "L'Habitat Au Cameroun" (Editions de l'Union Française) made by a study mission of the Ecole Nationale Supérieure des Beaux Arts in Paris.

The well-illustrated article describes how the bamiléké tribes build their huts. The lower part of the hut consists of four walls built of earth blocks (terre rouge latéritique) which are cast at the site by female labor (block dimensions: 18 x 20 x 40 centimeters). On top of the four walls which form a square, a round platform of bamboo trunks is placed which is reinforced by a strong square bamboo skeleton extending from one-half to one meter beyond the walls (cantilever). The round platform, about eight meters in diameter, carries the roof. The roof has the shape of a sugar loaf. Its interior structure is a pyramid consisting of four upright trapezoidal bamboo frames whose upper ends are bent together and fastened by ribbons of raphia palms. At about two-thirds of the height of the roof, a second round bamboo platform, smaller than the base, is attached to the pyramid to support the outer wall of the roof. This external wall consists of long upright bamboo trunks which are fastened to the lower and upper platforms and bound together at the upper end to form a dome. The vertical bamboos are reinforced by a mesh of horizontal bamboos. Then the roof is covered by thatch which is forced through the links of the mesh. Doors, windows, and furniture also are built of bamboo. Sometimes, the whole hut has been built entirely of bamboo. The article emphasizes the good insulating qualities of the roof and the inventiveness and skill of the workers.

7. "Swedish Light-Weight Concrete 'Hit of the Age' in Building Trade" in The South African Builder, Vol. 31, No. 2, Johannesburg, February 1953. p. 29 ff.

Since its development in the thirties, a novel multiple-use building material, called "Siporex", has been gaining ground in Sweden as well as in other countries and continents. (An experimental house using this material was described in Highlights No. 37, Item 6). It consists of a mixture of cement and finely ground siliceous sand to which aluminum powder, water and "some other" substances are added. Experiments with gas concrete showed that the material, when steam-hardened under high pressure, obtained properties superior to those resulting from conventional air hardening. The steam hardening is performed in an "autoclave" in which steam pressure is gradually raised. Here the sand and cement are amalgamated into a calcium-monosilicate of considerable strength.

It is claimed that the product is almost unshrinkable and has a greatly improved bearing capacity. It can be sawed, hewed, nailed and bored. It is said to be lighter than wood, as weather-proof as stone, fire-resistant and a good insulator against temperatures. Weight, structure, and insulating properties can be varied according to specific requirements and purposes. Building blocks of this material are manufactured in the dimension of 10" x 20" and 6" - 12" thick. They can be used for walls in buildings up to four or five stories high. In higher houses, they can be employed for panel walls and for the whole top section. It is further stated that Siporex can be reinforced and then used for various structural elements.

BUILDING RESEARCH

8. "Ten Years of Building Research in Sweden" (Bygghforskningen 10 Ar) in Byggnestaren, 1952, B 11, Stockholm, November 21, 1952. p. 233 ff. (Summary in English).

The development of building research in Sweden during the past ten years is outlined in a series of five contributions. Eskil Sundahl points out that at the present the State's annual expenditure for housing and building research represents only one fourth of one per thousand of the sum invested in building operations. He demands that for the research program of the State Building Research Committee, sufficient funds should be provided. Hjalmar Granholm emphasizes the need for basic research that concentrates on practical results and contributes towards raising prosperity. Research should not be limited to building materials but should include their correct application (construction research). Mejse Jacobsson urges research in planning, production, and administration, besides materials. Financing should preferably be provided by both government and industry to assure the distribution of available funds to various fields of work. Stig Alund suggests continued review and revision

of previous findings. Building research must not be an art for its own sake but an effort to obtain tangible, effective, and usable results. Cooperation among all disciplines concerned should be intensified. Rune Hanson raises the question why investigations of existing buildings are not carried out on a greater scale. Research should not be conducted in libraries and laboratories alone.

Note: "Building Research in Norway" (Byggforskningen i Norge) by Birkeland, in Teknisk Ukeblad 99, 1952, No. 36. pp. 721 ff.

CONSTRUCTION METHODS

9. Quicker Completion of House Interiors. A Report to the Minister of Housing and Local Government and the Secretary of State for Scotland, London, 1953. 63 pp.

The Bailey Committee on House Interiors submitted this report recommending a number of methods by which the cost of construction could be reduced. The report considers matters of: Design, Materials, and Components, and Building Organization, in separate chapters. Building to a small number of interior plans is expected to make the greatest single immediate contribution to speed, efficiency, and lower costs. Several sketch plans have been prepared for adoption by local authorities. The report calls for wider use of British standard products and for a further coordination of dimensions in British standards.

To advance modular coordination, it is recommended that house plans be drawn to a preferred dimension of 3 feet. Substantial savings in time and labor are expected from the use of new and alternative materials. Good organization of the whole construction project from start to finish is held essential. The Committee recommends further that wet plastering be reduced and that for interior partitions, pressure-moulded gypsum panels 3 to 4 inches thick, 2 feet wide, and one story high be used. All sanitary appliances should be grouped on the ground floor which may result in a saving of 10% of cost.

In the appendix several previous reports and memoranda by the Royal Institute of British Architects and other professional organizations have been reproduced.

10. "France Builds 'No-Fines' Concrete Houses in Record Time" in Building Digest, Vol. 13; No. 3; London, March 1953. p. 88 ff.

The article describes the construction methods chosen for a housing project at Martigues (Department Bouches du Rhône). This project consists of 11 blocks with three and four stories comprising 100 flats.

"No-Fines" concrete was cast in gridiron-type forms and reticulated floors cast on "lost" timber formwork. This concrete is said to possess great strength, is light weight, and has a thermal insulation 4 to 5 times better than a stone wall of equal thickness. Its main constituent is gravel of 14 x 30 mm, mixed with cement at a rate of 9.4 lbs. per cu. ft. The forms used for the walls consists of a steel frame with grid bracing of 3/8 x 3/8" mesh. The main advantages of these grid forms are seen in its light weight, easy handling, even by unskilled personnel, and frequent re-use.

The reticulated floor structures of reinforced concrete consist of slabs and rectangular ribs which are firmly anchored in the walls. As both the outer and the interior walls are load-bearing, the floor structure forms a rigid entity with an even weight distribution on foundations and soil. According to the article, a considerable saving in concrete and steel results from this unconventional method. Construction of foundation stone walls took about 17 days per building, and that of the three upper stories no more than 12 days per building. The whole project of 100 flats was built within 7 months by a single team. It is stated that the use of no-fines concrete is limited to structures of 5 or 6 stories.

11. "Anti-Seismic Construction" in Vivienda y Planeamiento (Housing and Planning), a bulletin published by the Pan-American Union, Washington, D. C., No. 3, February 1953. p. 6.

The laboratory of the Institute for Experimental Statics of the University of Chile in Santiago undertook experimental studies of "flexible" construction based upon pillars of steel and reinforced concrete. The exterior walls and the partitions are built independently from each other. These studies are called essential for the future of architecture in a country which like Chile is exposed to earthquakes. The steel pillars that are used have been manufactured in Chile, a factor which is said to reduce considerably the usual construction costs.

12. "Soil-Compacting Machine" in Engineering, Vol. 175, No. 4541, London, February 6, 1953. p. 192.

The note describes a "Vibrosoil compactor" which produces compacting blows up to 1 ton in intensity at a rate of up to 2,200 per minute. The machine is controlled by one man and is capable of propelling itself at a speed of 40 ft. per minute. The vibration and compacting force are derived from 3 shafts driven by a petrol engine through two V-belts. The housing of the vibrator unit can be swung about a horizontal axis so as to vary the angle, relative to the ground. The compactor can be used on soil, gravel, crushed stones, ashes, hardcore, and dry concrete. It is said to be suitable for compacting foundations, for backfilling trenches, and similar work.

DOCUMENTATION

13. Building Abstract Service (Bygglitteratur) published by the Danish National Institute of Building Research, Copenhagen; The State Institute for Technical Research, Helsinki; the Norwegian Building Research Institute, Oslo; and Swedish Building Literature, Tumba; January-February 1953. 8 pp.

This folder, issued jointly by the four Scandinavian research institutes, lists references on various phases of building and planning that have been published in the four Scandinavia countries. An English translation is added for each item. Brief notes, also in two languages, outline the content of the publications. The method of listing follows the system established by the International Council for Building Documentation.

14. Documenti di Architettura e Industria Edilizia (Documents of Architecture and Building) published by the Housing Study Center of the Italian National Research Council, Roma. No. 12, October-December 1952. (In Italian).

This periodical folder-publication contains a selected bibliography of Italian and foreign sources on various aspects of building, housing, and planning, annotated with short descriptions of the content and written in Italian or in French (for use in other countries). Another section of the folder publishes plans, views and technical data of residential and community projects in Italy. Two articles deal with "School Buildings in Various Countries" and with "Residential Construction in Denmark and Sweden," both illustrated by floor plans and photographs. In addition, two French methods of prefabrication ("Prefadur" and "Morosini") are described.

In addition to the publications mentioned above, the following bibliography has been received:

"Pressure of Concrete on Formwork"; articles, papers and books dealing with this subject, held by the Cement and Concrete Association, London; C.A.C.A. Library Record, Ch. 28 (2/53).

HOUSING DESIGN

15. Small House Designs--Bungalows published by Central Mortgage and Housing Corporation, Ottawa, Canada, 1952. 60 pp.

This bulletin is one of a series of booklets illustrating houses for which construction drawings have been made available to prospective homeowners and builders through cooperation of the Corporation and Canadian architects. Other booklets in the series include 1½ story and 2 story

houses. The present volume shows sketches and plans for two-bedroom and three-bedroom bungalows, all of brick or wooden frame construction and varying in floor area between 726 and 1300 sq. ft. A short introductory text calls to the attention of the prospective home owner, the important considerations of size, type and site selection.

HOUSING FINANCE

16. "France's National Housing Improvement Fund" by Charles Pranard, in News Sheet of The International Federation for Housing and Town Planning, No. 27, The Hague, February 1953. p. 15-16.

This National Fund was established in 1945 to assist landlords in financing repairs and sanitary improvements on residential rental property. The fund is maintained by the proceeds from a levy on rents, at present fixed at 5%, and by those from an annual compensation tax imposed upon rented dwellings. The types of improvement which may be assisted include outdoor repairs, installation of running water, toilet, sewer, ventilation, lighting, reconditioning of abandoned or unused premises, and subdividing. Also war-damaged properties may receive help from the Fund.

Financial assistance is provided in the form of subsidies and loans. Subsidies may be granted up to 20% of the expenditure, in exceptional cases up to 35%. Proprietors more than 60 years of age and not subject to a progressive supertax may obtain subsidies 20% to 50% higher than usual. Advances to the landlord may cover as much as the whole amount if he is unable to pay for the repairs. In any case, a credit account is opened by the "Sous-Comptoir des Entrepreneurs", without taking up a mortgage, for a period of three years at an interest rate of 3.9%. This agency pays out the advances to the contractors as their work proceeds. The owner also may obtain a long-term consolidated loan from the Cr dit Foncier de France repayable over a period of 10 to 20 years with carrying charges reduced by a subsidy from the Fund. Since 1947 up to September 1952, advances of almost fr. 12 billion were authorized. The amount of subsidy granted at the same time reached almost fr. 6 billion.

17. "Rental Income Guarantee in Canada" in Central Mortgage and Housing Corporation, Annual Report 1952, published March 11, 1953. 96 pp.

The 1948 amendment to the (Canadian) National Housing Act of 1944 enables the Corporation to guarantee the owner-builder of an approved rental housing project a gross rent return of 85% of the annual return of rentals for the duration of 30 years. For the first three years after completion, the monthly rent of a rental unit of 800 sq. ft. may not exceed \$87 if fully serviced or \$61 for an unserviced unit, plus \$4 for fully fireproof construction. The maximum varies with the size of the apartment. It is reported (on p. 14) that since the initiation of this program (July 1948) until the end of 1952, the number of dwelling

units covered by rental insurance contracts increased to 11,800 units. The aggregate of the guaranteed rentals (first year) amounted to \$9,373,000. Claims paid did not exceed \$5,474. The reserve for guaranteed rentals totaled \$718,000.

Favorable economic conditions resulted in an expansion of the housing demand for both owned homes and rental housing. This expansion is reflected in a substantial increase in the Corporation's business. The number of loans approved under the Housing Act rose 59% over 1951, their aggregate amount more than doubled. Effective September 1, 1952 the interest rates charged to borrowers under the Act were raised by one quarter of 1% bringing the rates to $5\frac{1}{4}\%$ on joint loans and homeowner loans, to $3\frac{3}{4}\%$ on loans to limited-dividend companies and to 5% on loans for rental insurance projects. Increased interest charges, higher municipal taxes, and larger loan amounts per unit contributed to a rise in the amount of the average debt service for owned homes from \$782 in 1951 to \$840 in 1952, which is equivalent to 18.2% of the average annual income of the borrower (\$4,618).

The report covers various other operations of the Corporation, such as direct lending, public housing and land assembly projects, supervision of construction, real estate administration, research and experimental housing at Vancouver and Ajax, Ontario.

18. "Establishment of a Housing Welfare Bank in Thailand" in Amembassy Despatch from Bangkok, March 25, 1953.

Authorized by the National Assembly in December 1952, this public lending institution was established in January 1953 with an authorized capital of 500 million baht (equivalent to \$40 million). The first installment of 20 million baht was appropriated in the 1953 budget. Additional funds will be provided by subsequent appropriations and by loans. These loans would be guaranteed by the government and would pay interest at 5% to 7%. Also, the Public Welfare Department of the Ministry of Interior was authorized to use 150 million baht for housing construction. In addition, each of the ministries was allocated 1 million baht for the construction of dwellings for employees.

HOUSING PROGRAMS

19. "Venezuela Pushes Housing Program" in New York Times, April 19, 1953.

A despatch from Caracas reports that the present building boom is supported by various factors, especially by a substantial influx of rural population into the urban centers by immigration (last year; 80,000), and by a high birth rate. Of a total population of $5\frac{1}{2}$ million, as of 1950, 51.5% now are called urban. Land values are said to have increased in the

past decade. Caracas is depicted as becoming a city of skyscrapers and broad avenues, and other cities may have to follow the same line.

While there is no lack of capital for the building of single-family houses or expensive apartments, hotels and offices, money for middle- and low-income housing is scarce. To deal with this housing problem, the government formed the Banco Obrero (Workmen's Bank) in 1928, but it is stated that this agency has been unable to keep pace with the growth of slums. The program of the Banco includes 12,000 low-rent and medium-rent apartments at a cost of \$60 million. In addition, the Banco is making loans not exceeding \$9,500 for private home construction. The latest Pedro Camejo development has 720 modern apartments (4 bedrooms) which sell at \$4,000 each and can be paid for in 15 years at 4% interest. In almost all projects of the Banco, the aggregate rental will be accepted as part of the purchase price when it has reached 50% of the property's value. It is further stated that no apartment is priced higher than \$9,000 and that the monthly payment does not exceed \$27. The Banco has been authorized to issue \$15 million housing bonds which are guaranteed by the government but require 6% interest.

20. Homes in The Netherlands, 1946-1952 (Woningen). Compiled by the Central Directorate of Reconstruction and Housing and published by the Netherlands Government Information Service; The Hague, 1952.

The purpose of this little publication is to give a general pictorial review of housebuilding in the Netherlands in the post-war years. Over these six years, about 200,000 dwellings were built in that country, including 41% public housing units and 29% erected by building societies. Those dwellings rented to lower-income families, were assisted financially by annual subsidies which vary according to the dwelling size and the number of beds. The remaining 30% of the dwellings were built for owner-occupancy or for sale. Most of these private projects also were subsidized by a public contribution of about one-third of construction cost. Private persons whose houses were destroyed during the war are entitled to a state subsidy for rebuilding, which in certain cases can be augmented by other financial aids.

The short introductory text of the booklet, printed in various languages, is illustrated by plans and views of various types of structures built in a large number of cities.

PREFABRICATION

21. "Production of Houses After the AB Bostadsforskning System" by L. Bergvall and E. Dahlberg in Byggnaestaren, B 1, Vol. 32, Stockholm, January 20, 1953. pp. 5-20. (English Summary).

The AB Bostadsforskning, a research company established in 1944, developed a new system of prefabricating wooden houses and house parts. In 1949,