CLASSIFICATION SECRET

INFORMATION FROM FOREIGN DOCUMENTS OR RADIO BROADCASTS

REPORT

CD NO.

COUNTRY	USSR	DATE OF INFORMATION	1949
SUBJECT	Economic - Construction materials industry		
HOW PUBLISHED	Daily, weekly newspapers	DATE DIST.	2 Feb 1950
WHERE PUBLISHED	USSR	NO. OF PAGES	6
DATE PUBLISHED	18 Aug - 20 Nov 1949		
LANGUAGE	Russian	SUPPLEMENT TO REPORT NO.	

THIS IS UNEVALUATED INFORMATION

SOURCE Newspapers as indicated.

USSR DEVELOPS NEW CONSTRUCTION MATERIALS, METHODS, MACHINERY

/Numbers in parentheses refer to the appended sources./

New Building Materials

A number of institutes under the jurisdiction of the Academy of Sciences Estonian SSR are engaged in research on the natural resources of the republic with a view to their practical exploitation. Problems of construction technique are concentrated in the Institute of Construction and Architecture, Academy of Sciences Estonian SSR, under director O. Maddison. This institute is dedicated primarily to research on new construction materials, including wall-building and cementing materials, and to planning construction designs corresponding to these materials and the conditions characteristic of Estonia. At the same time, the institute specializes in theoretical research on applied mechanics and other construction sciences. A special department is working on hydrology in connection with the study of water conditions in Estonia.

The institute has given particular attention to the possibilities of using mineral waste obtained in the process of shale-oil mining and burning. Primary consideration is given to the use of shale-oil ash in the production of various construction materials. Great progress has been made in this direction. First, production of the shale-ash cementing material, "kukermit," is now being organized. The institute has worked out technical norms for this new building material, as well as instructions for its use in construction. These norms and instructions are now ready for approval by the Committee for Standardization. The institute has prepared for publication a pamphlet, "The Cementing Construction Material, Kukermit," in Russian and Estonian. This new and inexpensive cementing material is gradually becoming more popular and will without doubt be used extensively in the Estonian SSR, as well as in Leningrad, as a cement substitute.

CLASSIFICATION SECRET SECRET

STATE	NAVY	NSRS	DISTRIBUTION
ARMY	AIR	FBI	

Another use of shale ash is in the production of shale-ash blocks, which provide a suitable wall-building material in this region. The Institute of Construction and Architecture is investigating the production of application of this material.

In addition, the institute is studying the application of shale lime obtained from seams of gangue, a more or less bituminous limestone, which is found in connection with shale. It was found that this material is superior to ordinary construction lime in many respects and that some of its qualities resemble those of hydraulic lime.

At present, the institute is beginning research on the use of shale in the production of silica bricks. The results of this research, which looks promising, may be introduced into industry during 1950.

Another important problem is the study of local construction materials available in the Estonian SSR in the form of rich deposits of dolomites. Constructional qualities of these dolomites have not yet been sufficiently investigated, although they have long been used for building purposes in Estonia. So far only the Lasnamyae deposits have been investigated. Study of the characteristics of dolomites (Saare marble and others), to be used as a potential source of materials for tiles and other decorative construction parts, is of particular interest. Research on dolomitic marl suitable for the production of cementing materials of the so-called magnesian type, such as Sorel cement, is also a worthwhile project. (1)

A group of scientific workers of the Institute of Construction Materials, Ministry of Construction Materials Industry Belorussian SSR, has worked out a method for producing artificial marble from Portland cement and alumina cement. The new type of artificial marble is a highly effective material for decorating interior and exterior walls of buildings. Artificial marble plates have high mechanical resistance and are lightproof and frost-resistant.

Compared to other types of artificial marble (made of gypsum, lime, etc.), Portland cement marble is easy to produce and can be given different shades and designs. A smooth, shiny surface is achieved without polishing or grinding. Production of artificial marble can be organized at any construction project. (2)

The Orgeyev City Industrial Combine, Moldavian SSR, has mastered the production of a new type of roof tiles made of "kotelets," a shell-rock material. The Council of Ministers Moldavian SSR has assigned 200,000 rubles for organizing mass production of this roofing material at the location of the shell-rock deposits, in the quarries of Braneshty village. Engineers from Kiev, Odessa, and Vinnitsa stayed in Orgeyev to study the production of kotelets roofing tiles. (3)

The Combine of Production Enterprises of the Construction Trust, Ministry of Petroleum Industry USSR, has begun tests of a new type of hollow reinforced-concrete roofing tile, developed by the trust's engineers under the direction of Voskanyan. Wooden roofing materials are now used extensively in construction. Reinforced-concrete tiles with round apertures had been developed to replace wooden materials, but were found to weigh considerably more than technical conditions permitted. The new tile weighs no more than 125 kilograms per square meter (maximum permissible weight is 150 kilograms per square meter). Production of the tiles consumes 35 percent less metal and reinforcement than is usually required. A special process for producing the tiles has been developed. (4)

The Institute of Construction Technique, Academy of Architecture USSR, has developed a method for producing "Keramzit" (a porous clay filler), a new construction material. It will be used in the construction of walls of multistoried buildings, for light concrete construction parts, and also as insulation for outer walls. Keramzit is a good insulator and is extremely light and durable. Keramzit bricks are four to five times lighter than regular ones. (5)

The "Krasnyy khimik" Plant in Novo-Belitsa, Gomel' Oblast, Belorussian SSR, is producing a special heat-insulating material, "sovelit." The plant fulfilled the 1949 year plan for sovelit production in 7 months and accumulated 450,000 rubles above plan. (6)

Plants of the Ministry of Construction of Heavy Industry Enterprises USSR have begun mass production of cement-"fibrolit," a valuable building material made of fine wood shavings and cement. (7)

During the past 2 years, the Institute of Geological Sciences, Academy of Sciences Armenian SSR, discovered a new raw material for the glass industry, quartz-pumice sand. Scientific research work has been organized to study all possibilities of using this type of sand in the production of glass by machinery, and to work out formulas for a number of glass products, especially glass flasks, electric bulbs, glassware, and glass jars. Various types of glass industry have developed in the Armenian SSR, including an electric-light-bulb plant and a glass-jar plant which are now under construction. Window glass is produced at the Mullite Plant of the Ministry of Construction Materials Industry USSR, and glassware is produced at the chemical plant of the Ministry of Local Industry Armenian SSR. These branches of production require an ample supply of raw material. (8)

New Production Methods

The "Avtosteklo" Glass Plant in Konstantinovka, Stalino Oblast, has introduced a continuous method of rolling reinforced glass. With a special machine the plant manufactures glass for mirror showcases, art glass, and reinforced glass for building and industrial purposes.

The Konstantinovka glassworkers have improved production methods and achieved outstanding results. By changing the temperature conditions, the glass-rolling workers have doubled the rate for the output of a glass strip. The first batch of glass with a thickness of 12-13 millimeters left the machine at the rate of 24.5 meters per hour. By using high-speed rolling methods, production was increased to 52 meters of glass strip per hour. High-speed workers achieved a production of reinforced glass at 120 meters per hour, and production of art glass reached the record speed of 220 meters, as against the standard of 90 meters. High-speed rolling methods helped to save 800,000 rubles and to fulfill the year plan ahead of schedule. (9)

Engineer Berezin of the "Tagilstroy" Trust has developed a new method of plastering. He suggested that the mixed cement-sand plaster mass be diluted with a chlorinated mixture, instead of using water as before. This makes it possible to perform exterior finishing work at a temperature of 25 degrees below zero.

By using the chlorinated plaster mixture, 120,000 square meters of outside walls were finished during the past winter. The plaster is remarkable for its resistance and durability. The new method will enable the "Tagilstroy" Trust to save up to 2 million rubles. (10)

The Ministry of Construction Materials Industry USSR has announced a competition for the best suggestion for mechanized pressure chill-casting of grinding cylinders (diameter 16, length 24 millimeters; and diameter 20, length 30 millimeters), or other improved methods eliminating the use of foundry loam. A first prize of 10,000 rubles and two second prizes of 5,000 rubles each will be awarded for the best suggestions. Suggestions must be submitted by 15 October 1949. Materials should be sent to the Bureau of Workers' Inventions, Ministry of Construction Materials Industry USSR, Moscow, D'yakovskiy pereulok 4. (11)

The Institute of Structures and Construction Materials, Academy of Sciences Armenian SSR, has developed an assembly method for building interstory floors in high buildings. The use of large, hollow reinforced-concrete blocks, as compared with floors of two-layer slabs, makes it possible to save metal and eliminates the necessity of sheathing material. "Simkor" floor girders are 70 percent hollow. (12)

The USSR has made great progress in construction mechanics and is considerably ahead of foreign countries in this field. In this connection Georgia has made a number of valuable new suggestions. Several years ago Professor V. Z. Vlasov developed a theory underlying the computation of surface coverings. His work, far ahead of that of western scientists, was awarded the Stalin Prize. Scientific associates of the Institute of Construction, Academy of Sciences Georgian SSR, including O. D. Oniashvili, V. N. Shayshmelashvili, and others, further developed the statements made by Professor Vlasov. I. N. Vekua, active member of the Academy of Sciences Georgian SSR, is working on the mathematical side of this problem.

Independent practical suggestions have been made for the construction of slanting roofs. The suggestion made by Ya. A. Gogoberidze is of special interest. It concerns a slanting, very lightweight type of brick roof. The design and construction methods have been used successfully on construction projects of the Ministry of Food Industry. As a result, materials were saved and the use of scarce materials was cut down. (13)

The All-Union Scientific Technical-Engineering Society of Builders held a competition for the best designs of earthquake-proof buildings in regions subject to earthquakes. Over 70 plans were received from 20 cities of the Soviet Union. The authors of ten plans received money prizes, including Ya. A. Izmaylov, engineer of Azgosstroytrest, S. Mostanzade, engineer of Bakproyekt, and M. Madatov, architect of Azgosarkhproyekt. (14)

New Machinery

The demand for products of the stone-quarrying industry is growing constantly. However, the supply is still very inadequate, one of the main reasons being the low level of mechanization in stone cutting. The quarrying of marble and granite involves a great deal of manual labor. Soviet inventors have developed a number of original designs for stone-cutting machines, which have been approved for production. The mechanization of stone-cutting has not been given sufficient attention by the "Nerudstenmaterialy" (Nonmetallic Wall Materials) Trust and "Uralnemetrud" (Ural Nonmetallic Ores) Trust. The Glavnemetrud (Main Administration of Nonmetallic Ores) and the Technical Administration of the Ministry of Construction Materials Industry are indifferent to this situation. This explains the fact that stone-cutting machines are being put into production very slowly. (15)

Powerful cranes have been installed in the Prokhorovo-Balandino and Koyelga marble quarries in the Urals. The industrial test of a new marble-cutting machine designed by A. Stolyarov has been completed. This machine completely replaces heavy manual labor and makes it possible to produce marble slabs of regular shape and smooth surface. (16)

The Tiraspol' Mechanical Plant imeni Kirov has tested a new stone-cutting machine, designed by engineer Galanin. This machine cuts regular-shaped stone blocks of standard dimensions and smooth surfaces from shell-limestone deposits. The machine has great economic value for Moldavia, as it greatly increases labor productivity and improves the quality of stone cutting. (17)

The Kharkov Machine-Tool-Building Plant imeni Molotov is producing special machine tools for polishing large granite blocks, which are to be used in the construction of high buildirgs in Moscow. (18)

A new "YUZ" lime slaker, designed by Engineer Yu. Zayachkovskiy, has been put into operation at a construction project of Glavvoyenstroy (Main Administration of Construction of Military Enterprises). The machine consists of a metal container with two guiding blades and special rollers which are operated by a steel spring. Water is fed through a pipe. A small skip charges the lime into the container. With the help of a special device on this slaker, two types of lime can be produced, regular and higher quality.

The "YUZ" slaker is a great improvement over existing machines. In the slaking process there is usually a loss of up to 30 percent. The new machine operates without waste and the raw material is completely utilized. The new slaker processes 25 tons of lime per shift and could handle an even larger quantity. The entire production process has become much simpler and cleaner.

The slaker was recently demonstrated before representatives of Moscow construction organizations of various ministries and scientific institutes. (19)

A new electric welding machine is used in the armature shop of the "Stroydetal'" Plant of Glavtsentrostroy (Main Administration of Central Construction). This machine can weld an iron armature at 20 points simultaneously and can handle 500 square meters of steel grating in one shift. It is planned to feed the metal to the welding machine mechanically, and a conveyer for automatic transfer of semifinished products is projected. (20)

A working model of a highly productive brick-cutting machine was tested in the Leninogorskiy Brick Plant in Moscow before specialists of the Ministry of Construction Materials Industry RSFSR. It was decided to put the machines into series production. (21)

A dry-brick pressing machine, designed by F. D. Ryzhkov before the war, has been reconstructed. A commission of the Ministry of Construction Materials Industry recently recommended that it be put into series production. The press, built on a completely new structural principle, is simple to build and operate and is remarkable for its light weight and low consumption of electric power. Its productivity, exceeding that of all similar machines, is 10,000 high-quality bricks per hour. The machine can press various types of brick, including hollow brick and brick with complex surface designs. (22)

SOURCES

1. Sovetskaya Estoniya, No 273, 20 Nov 49
2. Sovetskaya Belorussiya, No 228, 18 Nov 49
3. Sovetskaya Moldaviya, No 181, 9 Sep 49
4. Vechernyaya Moskva, No 202, 25 Aug 49
5. Kommunist, No 243, 14 Oct 49
6. Sovetskaya Belorussiya, No 165, 20 Aug 49
7. Sovetskaya Moldaviya, No 232, 20 Nov 49
8. Kommunist, No 219, 16 Sep 49
9. Sovetskaya Latviya, No 220, 17 Sep 49
10. Sovetskaya Latviya, No 208, 3 Sep 49
11. Trud, No 194, 18 Aug 49
12. Kommunist, No 218, 15 Sep 49
13. Zarya Vostoka, No 200, 11 Oct 49
14. Bakinskiy Rabochiy, No 176, 7 Sep 49
15. Promyshlennost' Stroitel'nykh Materialov, No 35, 26 Aug 49
16. Pravda, No 296, 23 Oct 49
17. Sovetskaya Moldaviya, No 202, 8 Oct 49
18. Moskovskiy Bol'shevik, No 226, 24 Sep 49
19. Vechernyaya Moskva, No 211, 5 Sep 49
20. Vechernyaya Moskva, No 209, 2 Sep 49
21. Vechernyaya Moskva, No 205, 29 Aug 49
22. Vechernyaya Moskva, No 203, 26 Aug 49

- E N D -