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PERSA Working Paper No. 61

THE UNIVERSITY OF
WARWICK
Department of Economics



*Political
Economy
Research in
Soviet
Archives*

Version: April 21, 2010

Available from <http://go.warwick.ac.uk/persa>.

FROM KHRUSHCHEV (1935-6) TO KHRUSHCHEV (1956-64): CONSTRUCTION POLICY COMPARED

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Anyone who has walked around the inner suburbs of Russia's major cities and towns will have noticed what are known locally as *khreshchevki* (five-storey blocks of flats). The mass housing programme and the provision of the single-family flat were central to Khrushchev's policy making in the late 1950s and early 1960s. Khrushchev's interest in construction and urban development, however, stretched back to the 1930s, when he was secretary of the Moscow Communist Party. A well-documented meeting on construction was convened in Moscow in December 1935, which discussed the current difficulties being experienced in the building industry, and its future. This chapter examines the economics of construction from the 1930s and how changes made in the building industry impacted on the principles and practices that underpinned both house-building projects and the construction industry in the Khrushchev period. Drawing parallels between the 1930s and the years from 1956 to 1964, when Khrushchev was in office, it investigates three specific areas of the economics of construction: the stabilisation of the labour force, rationalisation and organisation of the building sector, and oversight of construction costs.

The Background - Rapid Growth, 1928-36

During the early 1930s the Soviet building industry expanded extremely rapidly.¹ The number of people employed increased from about one million in the economic year 1927/28 to over three million in 1932.² This enabled the doubling of the capacity of the capital goods industries during these five years.

The labour force in the industry had always been mainly seasonal. The new building workers consisted very largely of peasants without industrial skills migrating from the countryside. This was a labour force in flux. The annual turnover reached 306 per cent in 1932; the average worker remained in the same post for only four months.³ Many of the new workers were engaged in purely manual jobs such as earth

¹ The Soviet terms *kapital'noe stroitel'stvo* or *stroitel'stvo* usually cover all capital investment. Sometimes, however, they refer only to 'pure construction' (*chistoe stroitel'stvo*), building work excluding the cost of the equipment installed at the site. Here we translate 'stroitel'stvo' both as 'building' and as 'construction'.

² See Table 2 and R. W. Davies, *Crisis and Progress in the Soviet Economy, 1931-1933*, Basingstoke: Macmillan, 1996, pp. 441 and 539. The 1927/28 figures include 684,000 employed in the industry and about 300,000 self-employed; the number of self-employed in 1932 seems to have been quite small, though the number of part-time *shabashki* (see below) is difficult to estimate.

³ See Davies, *Crisis and Progress*, p. 543.

moving. They would move to other building sites in search of better conditions, return to their village in the winter months or transfer to jobs in industry, where conditions were better. A leading building official stated at the end of 1935:

Until the present day building has added to its trained workers from seasonal workers and collective farmers. A huge section of these cadres came to the site without any qualification, and were trained up as fitters, workers with concrete, or as carpenters, but were then lost to construction, moving over to become permanent workers in new factories.⁴

The authorities made valiant efforts to regularise recruitment and stabilise the labour force by signing contracts with collective farms to acquire workers from them for a season, or one or two years. Most peasants, however, moved into building spontaneously and independently. According to Kaganovich: ‘Rural customs and habits (*derevenshchina*) are strong. Putting it bluntly, some of the individual peasants and even some kulak elements have found in railway building “a place for isolating themselves from collectivisation” (*Laughter*)’.⁵ In the large towns many builders undertook additional work in the evenings for high pay (so-called *shabashki*) and looked on their main work as a ‘sad necessity’, undertaken in order to obtain ration cards and accommodation. They left their main work early, borrowing tools from the site, to do what they regarded as their ‘properly paid’ work.⁶

Very little building machinery was available. One prominent official recalled:

I remember the construction of the Nizhnii Novgorod vehicle works, when it was a great event to receive a dozen pieces of building machinery from abroad...

Only two years ago [i.e. in 1933] it was a uniquely difficult problem to obtain 15 excavators from the Moscow-Volga canal. The excavators, mostly foreign, and varying by type and capacity, had to be brought together from various sites.⁷

Building was carried out by a large number of organisations under different auspices. The economic commissariats established firms for carrying out major projects, working directly for the branch of the economy concerned. They were usually temporary. When a project was completed, efforts were made to transfer staff and building equipment to a similar site, with limited success. According to the head of Gosplan: ‘With the old direct-labour arrangements, we were unable to secure a permanent building staff. The project was completed, the personnel dispersed, the accumulated experience was lost. Only the leading personnel were retained, and then not always’.⁸

In Narkomtyazhprom (the People’s Commissariat for Heavy Industry) a Chief Administration for the Building Industry (Glavstroiprom) was responsible for the general oversight of construction in heavy industry. It managed some building

⁴ *Soveshchanie po voprosam stroitel'stva v TsK VKP(b)*, Moscow: Partizdat, 1936, p. 49 (Ginzburg).

⁵ *Soveshchanie...stroitel'stva*, p. 271 (Kaganovich).

⁶ *Za industrializatsiyu* (hereafter ZI), 5 January 1935 (D. Babitskii).

⁷ *Soveshchanie...stroitel'stva*, p. 45 (Ginzburg).

⁸ *Soveshchanie...stroitel'stva*, p. 28 (Mezhlauk).

organisations directly; it was responsible, for example, for the construction of aircraft factories.⁹ Much major building, however, was managed by the chief administration of the industry concerned and was devolved in turn to a variety of organisations. The head of Glavenergoprom, responsible for the electric power industry, reported in 1935:

This year the overwhelming majority of our building work (90 to 95 per cent) has been carried out by direct labour – by district administrations, energy combines, individual power stations, and in some cases by building organisations directly subordinate to us. Our building experience shows that with such direct labour it is very difficult to establish a strong organisation, Work is poorly mechanised, the achievements of the best sites are not generalised, overheads are high, and financial discipline is weak.¹⁰

The arrangements for the production and supply of building materials were equally complex. Cement was produced at a relatively small number of factories managed by Narkomtyazhprom and allocated centrally. Most materials, however, were produced partly in factories attached to the main building sites and organisations, partly by the republican People's Commissariats for Local Industry, and partly by small factories attached to the local soviets, and by artisan cooperatives. In 1935 1700 million of the total production of 5959 million bricks were manufactured by the People's Commissariat for Local Industry of the RSFSR.¹¹ The building sites acquired their materials partly from their own factories, and partly by purchasing them from elsewhere.

As seen by the authorities, the crucial problem was the high cost of construction and of its three major components: labour, materials and capital equipment.¹² In the early 1930s construction costs rose considerably. The huge increase in the number of unskilled workers resulted in a substantial fall in labour productivity, greater than in the rest of industry. Despite this decline, money wages rose inexorably: by 14.9 per cent in 1931, 21.4 per cent in 1932, and 8.7 per cent in 1933, an increase of 51.7 per cent over the three years. Throughout these years, in spite of the decline in average skills, building wages were approximately the same as in industry as a whole.¹³ Food, accommodation and other facilities were far poorer than in other industries. One major building site employed 18,000 workers but had only 300 places in the canteen. 'High earnings', according to one building official, 'have been until now the only attractive force for a building worker'.¹⁴

The slowdown in the rise in wages in 1933 was accompanied by a drastic cut of 25 per cent in the number of persons employed in the industry, from 3.1 million in

⁹ ZI, 5 September 1935 (Rinberg, head of the building department of Glavaviaprom).

¹⁰ ZI, 5 September 1935 (K. Lovin).

¹¹ *Soveshchanie...stroitel'stva*, p. 143; *Promyshlennost' SSSR: statisticheskii sbornik*, Moscow: TsSU, 1957, p. 291.

¹² Much attention was also devoted to overheads, as in the case of all the aspects of the Soviet economy which the authorities were anxious to improve.

¹³ See Davies, *Crisis and Progress*, p. 544.

¹⁴ ZI, 5 January 1935 (D. Babitskii); for the canteen see the speech by Lyubimov, People's Commissar for Light Industry, in *Soveshchanie...stroitel'stva* (1936), p. 255.

1932 to 2.4 million in 1933.¹⁵ In 1933, labour productivity increased from its very low level, and it increased further in the following two years.

Building materials, the second major element in construction costs, also increased in cost in the early 1930s, whether purchased on central allocations, or produced in house by the building industry itself, or purchased from local or artisan industry. By 1935 the costs of cement and other centrally-allocated materials had been brought under control. According to Mezhlauk, cement cost 47 rubles a ton to produce, less than the planned 48 rubles 70 kopeks.¹⁶ The prices of locally-produced materials varied considerably, and the building sites frequently complained that they were higher than the cost of the same materials produced by their own organisation. The head of the administration of the Red Army responsible for building accommodation complained that local industries 'supply us with building components which are 20 to 25 per cent dearer than if we make them in artisan fashion on our own sites'.¹⁷

In 1935 the cost of local materials continued to rise. This is not surprising, as the abolition of rationing meant that food prices rose substantially for the workers in the industry, leading to an increase in wages. According to Mezhlauk, 'Voronezh region is the only region in the USSR which achieved a reduction in the cost of brick'.¹⁸ It was estimated that the cost of building materials as a whole increased by about three per cent in 1935.¹⁹

The cost of capital equipment, the third main element in construction costs, was particularly difficult to measure both because of its heterogeneous and changing nature and because a large proportion of it was imported in the early 1930s, and charged to the building industry at varying prices. In general, the cost of internally-produced equipment, like the cost of all machinery, increased relatively slowly, but there were important exceptions. According to the head of the Azov iron and steel project, the cost of a ton of rolling-mill equipment had risen since 1930 from 800 to 3,000 rubles.²⁰

In 1935, for the first time since 1930, the rise in construction costs was halted and perhaps reversed. Official estimates of the decline in the cost of pure building (that is, excluding the cost of equipment) varied from 1 to 4.2 per cent.²¹ However, this reduction was much smaller than the planned 15 per cent!

¹⁵ See Davies, *Crisis and Progress*, p. 542,

¹⁶ *Soveshchanie...stroitel'stva*, p. 18.

¹⁷ *Soveshchanie...stroitel'stva*, p. 178 (Levenson); see also p. 111 (Mamashvili, head of Makeevka construction). On the other hand, some locally-produced materials were subsidised, which made it more advantageous for an All-Union building organisation to buy them rather than manufacture them itself: p. 143 (Ukhanov).

¹⁸ *Soveshchanie...stroitel'stva*, p. 18.

¹⁹ *Soveshchanie...stroitel'stva*, p. 35 (Ginzburg).

²⁰ *Soveshchanie...stroitel'stva*, p. 111 (Gugel'); in response, Ordzhonikidze indignantly called out, 'None of you are trading, they pay what they tell you to'.

²¹ The lower figure was preliminary. *Soveshchanie...stroitel'stva*, p. 11 (Mezhlauk); for the higher figure, see GARF, 1562/10/357, 2-4 (TsUNKhU estimate, n.d. [1937]).

The Effort to Modernise and Reform the Industry, 1935-1936:

By the mid-1930s the authorities were making a desperate effort to achieve three competing objectives: to increase consumption, to switch resources to defence, and to continue to build up the capital stock of both heavy and light industries, and of the railways.²² The Stakhanovite movement was directed primarily at the more efficient use of the existing capital stock; the campaign to reduce construction costs sought to obtain more resources per unit of investment.

A well-publicised discussion of building costs formed a major part of the general discussion on the building industry which was widely publicised throughout the mid-1930s. The climax was the *Conference on Questions of Construction held in the Central Committee of the All-Union Communist Party (Bolsheviks)*. This took place between 10 and 14 December 1935, a few days before the plenum of the central committee which discussed Stakhanovism. It was attended by 350 prominent managers of large-scale building projects and from the building materials industries. Nine members of the Politburo took part, including Stalin, who was present on the last day. It heard reports from Mezhlauk, head of Gosplan, and Ginzburg, head of Glavstroiprom, the Chief Administration of the Building Industry of Narkomtyazhprom. Molotov summed up the proceedings, and the conference was addressed by 45 speakers, including Ordzhonikidze, Kaganovich, Mikoyan and Khrushchev.²³

The conference was held only eight months before the Zinoviev-Kamenev trial, the first major public trial of the 'Great Purge', but it was almost free from attacks on the former oppositionists. Molotov criticised '1928 views on industrialisation', but without mentioning Bukharin by name, and Khrushchev made a brief conventional attack on 'the Trotsky-Zinoviev opposition and the right-wing opportunists', but did not castigate them as class enemies.

Khrushchev, rapidly rising in the party hierarchy, was at this time secretary of the Moscow regional and Moscow city committee of the party. His was a major speech, longer than all the others except those by the two rapporteurs and Molotov.²⁴ It was the liveliest speech at a lively conference. The audience interrupted with applause and comments on no fewer than 27 occasions; those interrupting included Molotov, Lobov, Ordzhonikidze, Kaganovich, Ginzburg and Mezhlauk. Khrushchev concentrated on Moscow and its grandiose housing plan.²⁵ Yet, as Kaganovich called out from the platform, 'If an issue is raised for Moscow, it is also raised for the whole Soviet Union (*Applause*)'.

Housing was certainly not completely neglected in the 1930s. The comprehensive provision of mass housing was always strongly emphasised in party doctrine. On pragmatic grounds, the commissariats, in order to attract workers to their factories, particularly skilled workers, had to offer them a place to live. Yet the

²² For the investment situation, see R. W. Davies and O. Khlevnyuk, 'Stakhanovism and the Soviet Economy', *Europe-Asia Studies*, vol. 54, no. 6, 2002, pp. 867-78.

²³ The conference was widely publicised in the daily press, and the verbatim report was published as *Soveshchanie po voprosam stroitel'stva v TsK VKP(b)* (1936).

²⁴ *Soveshchanie...stroitel'stva*, pp. 207-22.

²⁵ See Simon *et al*, *Moscow in the Making*, London, New York and Toronto, 1937, on the Moscow ten-year plan, adopted in July 1935, and later expanded into a 20 to 25 year plan.

housing programme was consistently under-fulfilled. The industrial and other commissariats gave lower priority to housing than to their major economic tasks; local government lacked resources; and the cost of house building rose inexorably. As a result, the urban population grew more rapidly than the stock of housing. Against this background, Khrushchev called for the expansion of housing. At the heart of his speech was a call for ‘new advanced methods of construction and of the production of building materials’.

In Moscow this required that the large number of small building trusts working by direct labour must be replaced by specialised trusts working by contract. Most Moscow housing was constructed by the various commissariats for their own workers, and only 25 per cent by the Moscow soviet. Khrushchev was not so unwise as to advocate the transfer of house building from the commissariats to the soviet. Instead, he called on each commissariat to establish specialised housing trusts working for them under contract. He also proposed that all Moscow housing should be supervised by the soviet (Moscow did not possess this right at present) and form part of the state plan, receiving specific allocations of materials and equipment.

Khrushchev insisted that building materials and components - including bricks, doors, flooring and baths – should in turn be produced by specialised factories, attached either to the commissariats or to their building trusts, or to a specialised commissariat responsible for this production. Narkomles, the People’s Commissariat of the Timber Industry, for example, should produce all components manufactured from timber.

The watchword for all these developments was mechanisation. In the building process itself, excavators and lorries should replace manual labour, and the production of building materials and components should also be carried out by machinery: ‘The only way out is the *mechanisation* and *industrialisation* of our construction’. Ultimately, ‘the construction of a block of flats should be increasingly transformed into the assembly of building components’.

Khrushchev also called for the thorough revision of the system for preparing building projects and estimates. Good standards must be approved, with the participation of the architects, and applied throughout the industry. At present, ‘putting it bluntly, architects often failed to consider the cost of building...did not take care with the Soviet *kopek*, and their projects are completely detached from questions of economy’. Estimates must be compiled so that no supplementary resources are required [London Olympics 2012 please note]: ‘It is time to put an end to the criminal contempt for the approved estimates’.

Khrushchev’s assertions and proposals were in accordance with two decrees promulgated on 11 February 1936. The major decree of Sovnarkom and the party central committee, which was already being drafted at the time of his speech, ‘On the Improvement of Construction Activities and the Reduction in Construction Costs’, was simultaneously approved by the Politburo by poll.²⁶ On the same day, the Council

²⁶ Published in *Sobranie zakonov*, 1936, art. 70.

of Labour and Defence adopted a supplementary decree 'On the Reduction of the Cost of Production of Building Materials and Components'.²⁷

Khrushchev concentrated on the problems of providing accommodation for Moscow residents. The two decrees were primarily concerned with the much larger problem of industrial building. They resolved that building organisations should be established for the coal, hydro-power, thermal electric power, iron and steel and oil industries, and that in each industry these should be supplemented by specialist building organisations for heating, sewage and water. Building materials should also be manufactured by specialised trusts, though these would often work for the major industrial building organisations. In all these activities contracts between the client and the builder would replace direct labour. On each site a 'general contractor' would be responsible for the work as a whole, itself signing contracts with the specialised trusts.

Both decrees strongly emphasised the importance of mechanisation. Some progress had already been made with the replacement of manual labour by machines. The total number of excavators increased from 700 to 1,000 in 1935, and the number of cranes from 310 to 330.²⁸ The Sovnarkom and central committee decree required that 'up to 60 per cent' of earth work should be mechanised in 1936, and set similar targets for quarries and for the transport and production of their output.

The decrees paid much attention to the need for economy. Under the influence of Stakhanovism, labour productivity in construction was planned to increase by 'at least 30 per cent' in 1936. To encourage this, following the example of industrial production, the output norms for workers in the industry should be substantially raised, so that the wages received per unit of output would be reduced. The provision of finance would be tightened up. While finance arrangements would be more flexible as a result of providing each building organisation with its own working capital, the role of banks in controlling expenditure would sharply increase. According to the decree: 'Payment should be made in accordance with invoices based on acceptance certificates (*akty priemki*) for the work carried out, approved by the client'. The invoices should be prepared on the basis of the prices fixed in the cost estimate attached to the technical project, and reduced by the planned reduction in building costs.

With these reforms, the authorities hoped to secure the long-anticipated reduction in the cost of investment. In August 1935 the government agreed to reduce costs in 1936 'by at least 8 per cent in comparison with the estimate costs of 1935'.²⁹ The decree of 11 February 1936 proposed that pure building costs should be reduced by at least 14.5 per cent as compared with the estimate costs of 1935 and that all investment costs (including the cost of capital equipment) should be reduced by at least 11 per cent.

²⁷ Published in *Ekonomicheskaya zhizn'* (hereafter EZh), 14 February 1936.

²⁸ *Soveshchanie... stroitel'stva*, p. 20 (Mezhlauk).

²⁹ EZh, 28 August 1935 (STO sitting of August 23).

War Preparations Hinder Progress, 1936-1940:

The grandiose plans of 1935-6 were not achieved until after the economy emerged from the Second World War. The switch to defence construction and armaments production, together with the disarray resulting from the sweeping arrests and frequent executions of major and minor industrial officials, prevented the expansion of the building industry. In 1936 construction as a whole increased rapidly. In 1937 and 1938, however, total 'pure construction', measured by the Powell index, declined, and after a slight recovery in 1939 and 1940 was still 14 per cent less than the 1936 peak on the eve of the war (see Table 1 'Powell index'). From this smaller total, a substantially larger proportion was allocated to construction work for the armed forces, to the construction of armaments factories, and to the provision of additional facilities for the production of armaments in existing factories.³⁰

While 'pure construction' in the whole economy declined in the period from 1936 to 1940, investment in capital equipment increased. While accurate figures have not been available, the increase is indicated by the growth of the output of the machine-building and metal-working industries by 75 per cent in these years.³¹ Very large increases took place in the production of specialised machine tools, mainly intended for new industries.³²

By 1940 labour productivity (output per person employed), measured by dividing the Powell index by an index based on the number employed, had increased only slightly as compared with 1928. (see Table 2) During the first five-year plan, labour productivity greatly declined. The labour force increased much more rapidly than output. After 1932, however, the number employed in building declined while output greatly increased, so on the eve of the war productivity returned to approximately the 1928 level.

Despite the optimistic policies of the mid-1930s, housing remained a relatively neglected sector. During the second five-year plan (1933-37), only 26.8 million square metres of living space were completed, as compared with the plan of 64 million square metres. The housing completed per year declined throughout the period (see Table 3).

War Losses and Growth, 1941-mid 1950s:

During the Second World War, the German occupation of a large part of Soviet territory and widespread destruction elsewhere resulted in a vast decline in capital construction. 'Pure construction' had declined in 1945 to a mere one-seventh of the 1936 level. Recovery, however, was extremely rapid. In 1949, only four years after the war, 'pure construction' was already 17 per cent greater than in 1936, and at the time of Stalin's death in 1953 it was already 89 per cent higher than in 1936. Between 1950 and 1956, the Powell index increased by 79 per cent while the labour force increased by only 28 per cent. By 1956 the Powell index had already reached nearly 2.5 times the 1936 level, and was 7.5 times as large as in 1928, the year in which

³⁰ Capital investment by the armed forces, mainly 'pure construction', increased from 2,300 million rubles in 1936 to 6,000 millions in 1940: see J. Barber and M. Harrison (eds), *The Soviet Defence Industry Complex from Lenin to Stalin*, Basingstoke and New York: Macmillan, 2000, p. 82 (Davies and Harrison), and M. Harrison, p. 254.

³¹ *Promyshlennost' SSSR*: (1957), p. 203.

³² *Promyshlennost' SSSR* (1957), p. 208.

Soviet industrialisation began. By the mid-1950s, following a large increase in the production of building machinery in the first decade after the war (see Table: 15 below), despite the fact that the industry still exhibited many of the features characteristic of the pre-war period, it had made substantial progress towards modernisation. While much manual labour was still involved, many major building processes were now mechanised.³³ Substantial resources had been devoted to training the labour force. Over two million trainees completed building trade school between 1940 and 1955.³⁴ Between 1941 and 1955, the percentage of the building labour force with higher or secondary specialised education in construction, engineering or project making increased from 4.5 to 6.6 per cent.³⁵ The foundations had been laid for Khrushchev to resume the ambitious plans for the industry set out at the Building Conference twenty years earlier.

In the years before Stalin's death, substantial efforts were already made to repair the immense war-time damage to the stock of housing. Thus, in the four years from 1946 to 1949, 36.6 million square metres of living space were brought into operation, exceeding the living space completed in the five years of the second five-year plan.³⁶

In 1949 Stalin spoke at the Politburo on the plan for the reconstruction of Moscow: 'Without a fine capital there can be no state. We need a beautiful capital, which everyone stands in awe...a capital which is a centre of science, culture and art'. In this context, he called for blocks of flats which were eight to ten rather than four or five stories high, and for 20 to 25 per cent of blocks of flats to have 12 or 14 floors. The approaches to the city should be lined with new 8 or 10 storey blocks of flats, 'which delight the eye'. When this mass building was complete, Stalin continued, it was essential to move on to the completion of the House of Soviets (postponed by the war).³⁷

From the 1954 Builders' Conference to the 1957 Housing Decree:

A major All-Union Conference of Builders, Architects and Workers in the Building-Materials Industry, in the Construction Machinery and Road Machinery Industries and in Design and Research Organisations was held in Moscow from 31 November to 7 December 1954. This was the first builders' conference of national significance to be convened in many years and was one of several held in the decade following Stalin's death. The Third All-Union Meeting on Construction was convened from 10 to 16 April 1958 and an All-Union Meeting on Urban Construction met from 7 to 9 June 1960.³⁸

³³ For a summary of the state of the industry in the mid-1950s, see R. W. Davies, 'The Builders' Conference', *Soviet Studies*, vol. 6, 1955-6, pp. 443-5.

³⁴ *Stroitel'naya gazeta*, 5 December 1954. An unknown number of these moved on to other activities.

³⁵ Estimated from data in *Trud v SSSR*, Moscow: Statistika, 1968, pp. 264-5, 282-3.

³⁶ The 1946-49 figure is taken from *Istochnik*, no. 1, 2001, p. 79, citing APRF, 3/31/17, 119-22. In 1949 alone 11.5 million square metres of living space were completed: see p. 88.

³⁷ This account is from notes taken at the meeting of 17 June by G. M. Popov, president of the Moscow soviet: see *Istochnik*, no. 4, 2001, pp. 110-11. In his speech, Stalin insisted that the 20 to 25 year plan for Moscow, drawn up in 1935, should be replaced by a ten-year plan, because 'technology changes, conditions change, and even people's tastes change'.

³⁸ See RGAE 339/3/576 and RGAE 339/3/1037 and 1038.

1954 Conference: On 3 July 1954, Khrushchev set out his thinking on the current state of the architectural profession and the construction industry in a memorandum sent to the presidium of the Central Committee and to the deputy prime ministers of the USSR Council of Ministers.³⁹ At the Builders' Conference later in the year, Khrushchev took the opportunity to set out publicly his own agenda for the future development of the construction industry and housing policy.⁴⁰ His policy, stressing the need for rapid development of construction without frills, was in implicit contrast to Stalin's. He concentrated on the need to industrialise the construction sector, especially by increasing the use of new building materials and techniques, and particularly those employing prefabricated reinforced concrete. This would, he claimed, bring about savings in the manufacturing and assembly processes, reduce overall costs and speed-up the rates of project completion.

Khrushchev also called for the restructuring of the organisation and financing of the construction sector, a process begun after the 1935 builders' conference, but which had undergone little change since the late 1930s, despite significant development in construction techniques since then. The Ministries responsible for major industrial projects (such as iron and steel, electric power, nuclear bombs and the space programme, for example) each undertook a large part of housing development. As a result, there were a large number of separate house-building organisations in one single location. Reform, with mixed results, sought to bring all of these under local management. When it was established in April 1954, Glavmosstroi (the Moscow Construction Board) 'amalgamated under one body 53 building trusts, 225 general and specialist building contractors and over 600 productive and auxiliary enterprises, previously controlled by 44 different ministries and departments'.⁴¹

The sector required greater levels of specialisation to increase productivity and improve quality. Khrushchev called on the construction sector to become more flexible, mobile and efficient in its work. He argued that the very design of new buildings should be standardised, and that this should take place alongside a reduction in the use of costly and unnecessary adornments. Particular attention should also be paid to other ways of reducing costs, including the finishing of basic construction components in the factory rather than on site. Building projects should be more closely coordinated and construction plans should not exceed available capacity. Greater attention was to be paid to the training of a skilled workforce and reduction of labour turnover, which would result in increasing wage levels within the industry.

1957 decree: once he was in office, Khrushchev's proposals for the renewal of the Soviet Union's housing stock were set out in the Central Committee and Council of Ministers decree 'On the Development of Housing Construction in the USSR'

³⁹ The memorandum was published for the first time in *Istochnik*, no. 1, 2001, pp. 89-102, citing APRF, 3/31/17, 141-69.

⁴⁰ For Khrushchev's speech 'On the widescale introduction of industrial methods, improving the quality and reducing the cost of construction', see T.P. Whitney (ed.), *Khrushchev Speaks: Selected Speeches, Articles, and Press Conferences, 1949-1961*, Ann Arbor: University of Michigan Press, 1963, pp. 153-92. The speech was published in *Pravda*, 28 December 1954. See also Davies, 'Builders' Conference', pp. 443-57.

⁴¹ G. D. Andrusz, *Housing and Urban Development in the USSR*, Basingstoke: Macmillan, 1984, pp. 161-2.

issued on 31 July 1957.⁴² The decree acknowledged two particular processes that now led Khrushchev to place housing high on his economic and social policy agenda: firstly, the devastating loss of residential accommodation suffered by the Soviet Union during the years of the Second World War, which had only partially been addressed in the period of post-war reconstruction; and, secondly, the on-going process of urbanisation, which had seen the number of people living in towns and cities triple in the space of the past thirty years. The decree further acknowledged that the existing housing stock was inadequate and in a poor state of repair, particularly in rural areas. In addition, if the industrial economy was to expand, then suitable housing needed to be provided for the new labour recruits. The stated intention of the decree was to overcome the Soviet Union's housing shortage in the course of the next 10 to 12 years. Speaking at the Central Committee plenum in May 1958, however, Khrushchev declared that the housing shortage should be overcome in an even shorter timeframe than that initially envisaged by the 1957 decree.⁴³

How was this to be achieved? Demonstrating an awareness of the problems experienced in the building sector under Stalin, the 1957 decree called on those responsible for construction to use their initiative in the exploitation of raw materials and industrial output available locally in order to keep production and transportation costs to a minimum. The actual design and manufacture of housing was to move to industrial methods of production, despite the low level of technology currently available in the construction sector. Housing construction under Khrushchev was characterised by new building methods, including the industrial manufacture of standardised large-scale blocks and panels, which could then be transported to the construction site for erection and fitting on a time-efficient and cost-effective basis. New building materials were to be exploited, including reinforced concrete, cement, breeze blocks and asbestos. Responsibility for the management of construction projects was devolved to local government bodies, collective farms, building co-operatives and individuals.

The 1957 decree also recognised that further industrial growth would be needed to support the housing projects. The new residences would each need to be fitted with a bathroom – with bath, toilet and washbasin, all requiring plumbing materials. The kitchen would need to be fitted with cupboards and cooking equipment. Radiators would be needed for heating, glass for the windows, and slate for the roofs. Different materials would be required for flooring, including, wherever possible, locally-sourced wood for parquet designs, and also linoleum. Wood would also be needed for window frames and doors (and in timber-rich regions, the houses themselves could be built from wood). Existing communications networks and electricity supplies would need to be extended to the developing residential areas. Once built, the new apartment blocks would require furniture and other fittings for their interior design.

⁴² 'O razvitii zhilishchnogo stroitel'stva v SSSR', *Spravochnik partiinogo rabotnika*, Moscow: Gosudarstvennoe izdatel'stvo politicheskoi literatury, 1957, pp. 294-309. For an edited version of the decree, see also *Spravochnik profsoyuznogo rabotnika*, Moscow: Profizdat, 1959, pp. 538-42. On the implications of the decree for citizen's rights, see Mark B. Smith, 'Khrushchev's Promise to Eliminate the Urban Housing Shortage: Rights, Rationality and the Communist Future', in M. Ilic and J.R. Smith (eds), *Soviet State and Society under Nikita Khrushchev*, London: Routledge, [2009].

⁴³ D.L. Broner, *Sovremennye problemy zhilishchnogo khozyaistva*, Moscow, 1961, p. 95.

While these economies led to the appearance throughout the USSR of similar-looking and aesthetically uninspiring blocks of flats, the most important factor in the housing campaign was the use of labour power and materials on an unprecedented scale. The total stock of urban housing increased by 77 per cent between 1955 and 1963 (see Table 4), which was more than double the rate in the eight years from 1928 to 1936.⁴⁴

Despite the great progress in both housing and industrial construction under Khrushchev, there were many complaints about the quality of both construction work and the fittings in new buildings.⁴⁵ One contemporary report noted that, because of delays in forwarding plans, construction work was often begun before estimates were complete. The proposed volume of construction did not take account of available resources and, as a result, shortages of supply held up the building projects. Many buildings were poorly constructed, with badly fitting window frames and doors, low quality walls, floors that buckled and plaster falling from the ceiling. Kitchens were poorly supplied with cupboards and there was no attempt to landscape the exterior of the buildings.⁴⁶ Insufficient attention was paid in some regions to water supply for the new construction projects, especially in areas where natural sources of water were located at a long distance from the blocks of flats and would require lengthy piping.⁴⁷ The supply of other local services and facilities – including shops, schools and hospitals – was often considered inadequate and led to increasing burdens being placed on housewives and working mothers.⁴⁸ In the late 1950s, some of the blame for poor quality work was directed towards young workers with low levels of qualification for work in the building industry.⁴⁹

The Labour Force in Construction:

Crucial to the success of Khrushchev's housing policy were the expansion, stabilisation and increased specialisation of the workforce in the building sector. The labour force employed directly in construction on building sites expanded rapidly, from 2.9 million at the time of Stalin's death in 1952, to just over four million in 1957 and to almost 5.4 million in 1964 (an increase of 2.5 million workers in just over a decade). In addition, a further 1.5 million workers were employed in the construction sector in subsidiary occupations, transportation and housing services (see Table 5 'labour in construction').⁵⁰ In the industrial sector, by 1960, a little fewer than 1.5 million workers were employed in the building materials industry (recorded separately from the construction sector in the labour statistics data). This marked an

⁴⁴ For the increase in 1928-36, see R. Moorsteen and R. Powell, *The Soviet Capital Stock, 1928-1962*, Illinois, 1966, p. 90.

⁴⁵ For reports on aspirations and achievements in industrial construction, and plans to extend projects overseas, see, for example, RGANTD, f. R-7, op. 2-6, d. 213, ll. 7-10 (results for 1959); RGANDT, R-7/2-6/232, 6-15 (results for 1960); RGANDT, R-7/2-6/253, 7-18 (results for 1961); RGANDT, R-7/2-6/268, 18-19, 40 (results for 1962). For complaints about the quality of work and calls for greater regulation of the construction industry, see RGAE, 339/3/1038(3), 197-8 (speech by Ukhenkeli).

⁴⁶ T. Sosnovy, 'The Soviet Housing Situation Today', *Soviet Studies*, vol. 11, no. 1, 1959, pp. 11-12.

⁴⁷ See, for example, RGAE, 339/3/1038(3), 165 (speech by Dedunik).

⁴⁸ RGAE, 339/3/1038(3), 209-13 (speech by G.A. Grudov) and 217-23 (speech by D.V. Popov).

⁴⁹ For example, see GASO, 4370/1/23, 159 (1957), and RGAE, 339/3/1038(3), 165 (1960).

⁵⁰ The data reveal an unexplained short-term dip in the number of manual workers employed in construction in 1962.

increase of almost half a million workers over the numbers employed in 1955.⁵¹ (see Table 6). The number of manual workers employed directly in construction increased by 74 per cent between 1953 and 1964, and the number of engineering and technical workers (ITR) increased by 163 per cent. The numbers of ITR in the building materials industry more than doubled in the ten years from 1955 to 1965. During the years that Khrushchev was in office, amongst the manual labour force on building sites, workers came to be increasingly employed in specialised areas of construction, such as concrete layers, welders, painters, carpenters, plasterers and electricians rather than as general navvies, joiners or road and repair workers (see Table 7).

Education and Training: It is evident that the labour force was being better trained and becoming increasingly specialised under Khrushchev. Specialised training was an important part of Khrushchev's strategy for the expansion of the construction sector. Under Khrushchev, there was a growth in on-the-job training opportunities, and specialist courses for construction and building industry workers were delivered at technical vocational schools. It was widely believed that skilled workers were less likely to leave the construction site in search of better conditions and higher wages elsewhere. The skilling of the labour force was part of the aim to increase labour discipline and to reduce overall levels of labour turnover in industry. The ready availability of training also encouraged new workers to develop a specialist trade within the building industry. The proportion of specialist workers in construction, in both building and project organisations, with higher and secondary education increased from 6.6 per cent in July 1955 to 13.5 per cent in November 1964 (by which time Khrushchev had been removed from office) (see Table 8).⁵²

Women workers: although the numbers of women employed in construction rose steadily (from just under one million in 1955 to just over 1.5 million in 1963), female workers continued to constitute a stable proportion of the labour force at roughly 29 to 31 per cent (and they constituted between 45 and 48 percent of the paid labour force as a whole in these years) (see Table 9). According to data for 1961, women held around one fifth (22 per cent) of all professional and executive posts in construction. They were most widely represented amongst economists and book-keepers, rate setters, technicians and engineers. They were less likely to be found, not surprisingly, as shop floor supervisors and heads of enterprises (see Table 10). Like their male counterparts, increasing numbers of women employed in manual jobs in the construction sector and in the building materials industry had studied at technical vocational schools, where they were mainly trained as plasterers, masons, carpenters and joiners (see Tables 11 'trng at tech voc schools' and 12 'trng by trade'). Although they were less likely to be found working directly on the construction site itself, in 1959 women constituted over half (54 per cent) of the workers employed in the building materials industry (see Table 13).

Labour discipline: under Khrushchev, significant efforts were made to improve the levels of labour discipline in the construction sector. Rates of unauthorised absenteeism and poor work conduct were particularly high amongst young workers, who formed the bulk of new recruits to the industry, both on building

⁵¹ *Trud v SSSR*, pp. 86-7. Workers employed directly on building sites are listed under '*stroitel'stvo*'; those in the building materials industry are listed as a sub-category of industrial employment under '*promyshlennost' stroitel'nykh materialov*'.

⁵² Own calculations based on data from *Trud v SSSR*, pp. 24-5, 264-5, 282-3.

sites and in the research institutes. Penalties were imposed and infringements of labour discipline were dealt with accordingly by the authorities, sometimes resulting in dismissals.⁵³ Attempts were also made to improve the living conditions of building workers.

Improvements in workplace facilities, such as the provision of washrooms and toilets for women workers in the building materials industry, contributed towards the stabilisation of the labour force. Probably the most significant contributor to reducing the levels of labour turnover in construction, however, was the introduction of uniform wage rates across the building sector. This meant that it would no longer be profitable for a worker to leave the building site in search of higher wages elsewhere.

Building Materials

The success of Khrushchev's construction policies was partly dependent on the development and expanded production of new types of building materials and the introduction of new techniques in their production.⁵⁴ The output of basic building materials was scheduled to take place, as much as possible, in an industrial setting and on a mass scale with the aim of effecting significant reductions in the costs of production, improving the quality of output and speeding up the actual process of on-site construction. Some of the savings made in production costs and labour productivity were consequently passed on to workers in the form of wage increases, thereby broadening the appeal of the building materials industry and construction sector as areas of employment. In practice, the development of new building materials meant that concrete began to substitute for the use of timber and metals, and cement began to replace bricks as basic building materials. There was also some discussion of expanding the use of plastics to roofs, floors, windows and bathrooms.⁵⁵

Concrete and cement: the broader use of reinforced concrete and cement had a number of benefits that aided the rapid expansion of housing construction under Khrushchev. By 1964, the Soviet Union had more than 2500 enterprises alone producing 55 million cubic metres of reinforced concrete. The output of cement rose from 15.9 million tons in 1953 to 64.9 million tons in 1964 (see Table 14 'bldg mats').⁵⁶

'Hard' (rather than 'plastic') concrete was considered to be more cost-effective, gave the building greater strength, could be produced more quickly and reduced expenditure in the assembly process in comparison with its alternatives. The new building materials significantly reduced expenditure on basic products such as metals (including steel) that were more difficult to source and more costly to produce. Expenditure on the basic raw materials of construction, therefore, was cut by up to 50 per cent. Labour costs in production were also reduced by between 20 and 25 per cent. In addition, concrete and cement were resistant to corrosion and were considered to be more durable than their alternatives. These were also fire-resistant materials, and so

⁵³ For examples, see RGANDT, R-7/2-6/220: *Rabota po ukrepleniuyu trudovoi distsipliny* (1959); R-7/2-6/242: *Rabota po ukrepleniuyu trudovoi distsipliny* (1960). See also GASO, 4370/1/23, 160-61.

⁵⁴ On new techniques, including the vibration method in panel manufacturing, see RGAE, 339/3/1038(3), 154-6 (speech by V.V. Mikhailov).

⁵⁵ RGANDT, R-149/5-4/27: *Primenenie plastmass v zhilishchnom stroitel'stve* (1958).

⁵⁶ N. V. Baranov (ed.), *Industrializatsiya zhilishchnogo stroitel'stva v SSSR*, Moscow: Gosstrois SSSR, 1965, pp. 3-4.

not only did they strengthen the very fabric of the building, but it was also widely believed that they enhanced its overall safety.

Pre-fabrication: the use of pre-fabrication in housing construction, first publicised at the builders' conference in 1935, was developed in the Soviet Union under Stalin in the immediate post-war period. The Khrushchev era heralded its widespread use. Prefabricated panel design was used in only three per cent of house building in 1959, but by 1965 it accounted for 56 per cent of all state-sponsored housing construction.⁵⁷ The mass output of prefabricated panels meant that from 1958 to 1963 the cost of producing prefabricated materials was reduced by 18 per cent for each square metre.⁵⁸

The use of girder and panel designs in housing construction meant that pre-fabricated floor, wall and ceiling panels could be mass produced in factories and then transported directly to the building site for erection. Two different types of pre-fabricated panel ('multi-hollow' and 'multi-ribbed') were in use. There were also discussions in some parts of the country about the possibilities of manufacturing entire one-storey buildings in the factory and delivering these complete and ready to live in to designated residential areas. Pre-fabricated panels again provided savings in raw materials (including metals), were relatively cheap to produce and could be made relatively quickly (unlike the on-site use of poured concrete, which would have to be given time to set). Basic painting and decorating could take place in the factory, thereby reducing the need for specialist labour on the building site itself. In addition, pre-fabricated panels were considered to provide good sound proofing.

Breeze blocks: the use of breeze blocks in construction was already evident in large cities in the Soviet Union by the 1940s.⁵⁹ Only eight per cent of housing was built using breeze blocks in 1959, but this had increased to 12 per cent by 1965. Over the same time period, the use of bricks in construction declined from 52 to 12 per cent.⁶⁰

By substituting the output of larger-sized breeze blocks for the more expensive and time-consuming production of bricks, overall costs of production were reduced by around 12 per cent. The extensive use of breeze blocks also brought about savings in the assembly process and helped to raise the levels of labour productivity on building sites. Unlike bricks, breeze blocks could be easily mass produced on site if necessary, thereby bringing about further savings in transportation costs. In addition, breeze blocks were significantly lighter in weight than bricks, which again aided the physical process of construction and reduced the overall weight of the building.

Interior and exterior design materials: savings were also to be made in the materials used in the interior and exterior design of new buildings. Khrushchev extolled the virtues of the new floor covering linoleum in his speech to the 1954 Builders' Conference, claiming that it was 'not inferior to parquet'.⁶¹ Parquet was

⁵⁷ Broner, *Sovremennye problemy*, p. 105 (table 21).

⁵⁸ Baranov, *Industrializatsiya zhilishchnogo stroitel'stva*, p. 27. See also the 4 April 1959 Council of Ministers decree 'On the development of large-panel housing construction'.

⁵⁹ Baranov, *Industrializatsiya zhilishchnogo stroitel'stva*, p. 26.

⁶⁰ Broner, *Sovremennye problemy*, p. 105 (table 21).

⁶¹ Khrushchev, 1954 Builders' conference, p. 178.

time-consuming and costly to lay, whereas linoleum and vinyl could be mass produced cheaply and easily in a whole range of different designs.⁶² The exteriors of the housing blocks were to be distinguished by the use of balconies and different designs on the facades.⁶³ Mass-produced ceramic tiles, which were ‘durable, attractive and the colours do not fade’, were widely used.⁶⁴ Wherever possible, tiles were to be affixed at the factory stage of production so that they were delivered to the building site already mounted on pre-fabricated panels.

Using the methods of industrial production to assist in the output of building materials as promoted by Khrushchev at the 1954 Builders’ Conference and in the 1957 decree on construction, and with the aid of new building machinery to support on-site assembly, within a very short period of time a number of different areas of the country were able to provide favourable reports on the progress of house building at significantly reduced cost per square metre in their regions.⁶⁵ Such construction projects were considered to have the benefit not only of providing much needed accommodation in the localities, but they also strengthened the Soviet Union’s regional industrial base.

Costs of Production:

Significant success was achieved in the aim to reduce the costs of production in construction through the rationalisation of building design and sources of investment, the extensive introduction of mechanised means of production both on building sites and in factory-based manufacture combined with the reduction of transportation costs, raising overall levels of labour productivity and the introduction of a systematised wage-scale for employees in the construction sector.

Rationalisation of design: the rationalisation of design, particularly for new housing, and the standardisation of the basic components used in construction allowed for significant savings to be made in the overall costs of production. By the end of Khrushchev’s period of office, 95 per cent of housing construction was based on standardised designs.⁶⁶ The government set standards for different areas of building design, such as establishing ceiling heights and the size of kitchens.⁶⁷ Building specifications divided the country according to four different climatic zones on the basis of a range of different temperature conditions, as well as the possibility of a region experiencing earthquakes.⁶⁸ The building norms and regulations, however, were not always considered to be adequately defined or to be suitable for the most

⁶² See also the arguments put forward by D.V. Popov in 1960: RGAE, 339/3/1038(4), 226-7.

⁶³ The example of Novye Cheremushki was used at the 1960 meeting on urban housing development. See RGAE, 339/3/1088(1), 47-8 (speech by V.P. Lagutenko).

⁶⁴ Khrushchev, 1954 Builders’ conference, p. 178.

⁶⁵ See, for example, I. Panov, ‘Narodnaya initsiativa v zhilishchnom stroitel’stve’, *Partiinaya zhizn’* (PZh), no. 13, 1959, pp. 17-22 (Orenburg); ‘Novyi metod organizatsii stroitel’stva zhilishch’, *PZh*, no. 5, 1960, pp. 36-9 (Leningrad); M. Burka, ‘Ukreplyaem material’no-tekhnicheskuyu bazu stroitel’stva’, *PZh*, no. 21, 1960, pp. 22-7 (Ukraine).

⁶⁶ Baranov, *Industrializatsiya zhilishchnogo stroitel’stva*, p. 18.

⁶⁷ For discussion on specifications of design for new housing in Kramatorsk, see RGANDT, R-149/5-4/25, 3-45; for blueprints of the housing projects, see RGANDT, R-149/5-4/26, 4-12. For Khrushchev’s justification of the cost savings involved in lowering ceiling heights from 3.5 to between 2.7 and 2.5 metres (on the model used in England), see his speech to the V Congress of the International Union of Architects, 25 July 1958, published in *Istochnik*, no. 6, 2003, pp. 90-97 (p. 92), citing APRF, 52/1/545, 1-19.

⁶⁸ Baranov, *Industrializatsiya zhilishchnogo stroitel’stva*, pp. 18-20.

extreme climatic conditions.⁶⁹ In Turkmenistan, for example, it was suggested that buildings should be restricted to three storeys, to withstand local seismic conditions, and that the increased use of panels would reduce internal temperatures, where the installation of windows could cause the temperature to rise by three to four degrees.⁷⁰

By 1963, 62 per cent of all urban housing took the form of five-storey blocks with flats of between one and four rooms.⁷¹ Some construction was also taking place of nine, 12 and 16-storey blocks of flats and of lower-rise buildings. From the outside, these blocks were distinguishable mostly by the use of different colour tiling on the façade. Their uniform and modular design allowed for little flexibility in the layout of the interiors.

The use of prefabricated materials in construction meant that the blocks were erected, it has been estimated, at an expenditure of between 35 and 40 per cent less than if bricks had been used.⁷² The introduction of industrial methods of production and construction meant that a five-storey block containing between 60 and 80 flats could be completed in four to five months, during which time the actual construction itself could be completed in just 25 to 30 days.⁷³ One engineer based in Moscow claimed in 1958 that a five-storey building using large-panel design could be erected in only 93 days, and that future improvements in technology would reduce this timeframe even further.⁷⁴

Capital investment: under Khrushchev, around two thirds of house building was funded directly by the government, with the remainder of investment coming from collective farms, house-building co-operatives and private individuals to whom the government offered credit.⁷⁵ Although the actual size of urban housing owned as personal property continued to expand under Khrushchev, it came to represent a declining proportion of overall construction in the years between 1960 (39.1 per cent) and 1964 (35.8 per cent).⁷⁶ The government also invested heavily in expanding the industrial base of construction. In six years (1959-64) of the Seven-Year Plan, 60 per cent of capital investment was directed towards the construction sector of the national economy, including 21 per cent allocated to house building. Some of the other money was spent on the expansion of public facilities such as schools, hospitals and shops.⁷⁷

Mechanisation of production: the most expensive elements in the costs of production in construction were machinery and transportation. In addition to the expansion of factory-based output of basic building components, machinery was also introduced for use directly on building sites. By 1963, most of the formerly manual, back-breaking work of ground preparation and the laying of foundations was now

⁶⁹ For example, such concerns were raised at the 1958 All-Union Meeting on Construction: RGAE 339/3/576, 63-4 (speech by V.N. Glinka, from Turkmenistan), and 95-102 (speech by S.F. Agafonov, from Noril'sk).

⁷⁰ RGAE, 339/3/1038(3), 161-3 (speech by O.V. Dedunik).

⁷¹ Baranov, *Industrializatsiya zhilishchnogo stroitel'stva*, p. 6.

⁷² RGAE, 339/3/1037(2), 77-8 (speech by A.V. Vlasov, 'Zastroika gorodov v usloviyakh dal'neishei industrializatsii stroitel'stva'). See also Baranov, p. 6.

⁷³ Baranov, *Industrializatsiya zhilishchnogo stroitel'stva*, p. 28.

⁷⁴ RGAE, 339/3/576, 87-8 (speech by Makrushin).

⁷⁵ Baranov, *Industrializatsiya zhilishchnogo stroitel'stva*, p. 2.

⁷⁶ Andrusz, *Housing and Urban Development*, p. 22.

⁷⁷ Baranov, *Industrializatsiya zhilishchnogo stroitel'stva*, p. 22.

being carried out by mechanised means, made possible by the mass production of heavy building equipment (see Table 15).

Labour productivity: the increased mechanisation of production and the automation of the construction process contributed to rising levels of labour productivity in the building industry. Increases in labour productivity were also the result of the more efficient use and effective organisation of workers on building sites. Building site workers were encouraged to make the most economic use of available resources, as well as to reduce the levels of spoilage and accidental damage to building materials and equipment.⁷⁸ As indicated above, the labour force in construction was better trained and more highly educated under Khrushchev than it had been in previous decades and this in itself resulted in increases in labour productivity. Increases in productivity were supposed to stay in advance of increases in wages.

Wages: in 1955, largely because of the predominantly unskilled and non-specialised nature of the work on building sites, manual workers in the construction sector earned less on average per day than the national average for the economy as a whole and significantly less than workers employed in industry: manual workers in construction earned 70 rubles per day as compared with 71.5 rubles per day for the national average and 78.3 rubles per day for industrial workers (see Table 16). Five years later, however, by 1960, the wages of all workers in construction (including ITR and administrative personnel) outstripped that of both the national average and the industrial sector: 91.7 rubles per day in construction; 80.1 rubles per day in the national economy as a whole; 91.3 rubles per day in industry.

During the years in which Khrushchev was in office, manual workers in the construction sector saw their wages rise by almost 50 per cent, from an average of 70 rubles per day in 1955 to 103 rubles per day in 1964. Their wages had overtaken the daily earnings of administrative personnel in construction by 1960. The earnings of ITR in construction, which were considerably higher than that of both blue- and white-collar workers, also continued to rise though at a somewhat slower pace. Wages in the buildings materials industry were lower than on building sites, but they also saw a steady rise in the course of this decade.

Postscript: In the first decade of the twenty-first century, the remaining *khrushchevki* are receiving a mixed review in Russia. In some areas of the country – in Samara, for example, where some of the research for this chapter was conducted – *khrushchevki* are much sought after in some areas of the city, where they are being carefully renovated and turned into bijou apartments by rising young professionals. In Moscow, however, where land prices are sky rocketing and the inner suburbs are highly prized sites for new construction projects, Khrushchev's experimental blocks of flats have sometimes been dubbed *khrushchoby* (playing on the Russian word for slums – *trushchoby*). The external fabric of the buildings is crumbling, with the danger that balconies will collapse into the street below, and concrete wall panels are in an evident state of decay. A mass demolition programme is in progress, earmarked for completion by 2010. The capital's Khrushchev-era architectural heritage will not be

⁷⁸ GASO, R-4370/1/22.

entirely lost, however - there are plans to turn one of the remaining *khrushchevki* into a museum!

Conclusion

Under Stalin, in the 1930s a huge expansion took place in capital investment, concentrated on the building up of heavy industry and the defence sector. Considerable efforts were made to increase the volume of urban housing, but these efforts failed to keep pace with the rapidly-growing urban population. In 1935 the authorities sought to modernise the building industry in general and house building in particular, and they also planned to expand investment in housing. Khrushchev played a prominent role in these efforts. The priority given to defence from 1936 onwards greatly limited the effects of these plans. The plans for industrialising the building industry and expanding housing were resumed after the first stages of post-war recovery. The devastating impact wrought on living space by the war led priorities to begin to shift towards the housing sector after 1945. New and experimental methods of housing design and construction, already launched in the mid-1930s, were resumed in the late Stalin period but were not fully exploited.

When he came to office in the 1950s, Khrushchev made housing a central feature of his social, political and ideological agenda, and housing construction expanded extremely rapidly in the late 1950s and early 1960s. Khrushchev's housing policy placed great emphasis on achieving maximum living space at low cost, and was often criticised for the poor quality of construction which resulted.

Expansion of Soviet housing at relatively low cost was dependent on the rationalisation of design, the widespread exploitation of new building materials and techniques, and the rapid expansion and stabilisation of the labour force. Khrushchev's approach to housing, particularly in Moscow, strongly differed from Stalin's. He urged that housing should be built as economically as possible, and that it should consist mainly of four or five storey blocks (which would not require lifts). Unlike Stalin, Khrushchev had a 'no frills' approach to housing design, opting instead for more utilitarian and practical outcomes. His legacy in construction policy and housing design, with mixed public reception, was evident in the urban landscape until the end of the Soviet period and beyond.

Davies and Ilic: Construction tables

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Table 1

The Powell Index of Soviet Construction, 1928-1958
(1927/28=100; measured in 1937 prices)

1927/28	100
1929	124
1930	161
1931	174
1932	173
1933	156
1934	188
1935	232
1936	313
1937	273
1938	269
1939	275
1940	275
1945	117
1946	175
1947	216
1948	267
1949	368
1950	422
1951	480
1952	555
1953	591
1954	651
1955	719
1956	758
1957	826
1958	902

Source:

Calculated from data in R. P. Powell, *A Materials-input Index of Soviet Construction, Revised and Extended*, Santa Monica, CA, 1959, RAND Corporation Memorandum, RM-2454.

Note:

Following the practice of Simon Kuznetsk and others, Powell prepared this index of materials inputs into construction as a proxy for the output of the construction industry. For details, and discussion of why this index is preferable to other indices of the growth of construction, see R. P. Powell, *A Materials-input Index of Soviet Construction*, Santa Monica, CA, 1957, RAND Corporation Memoranda, RM-1872 and 1973.

Table 2

Comparison of the Growth of the Number Employed in Construction with the Powell Index, 1928-1958

	Personnel employed in construction (thousands)	Personnel employed in construction (1928=100)	Powell index, (1928=100)
1928	984 ^a	100	100
1932	3150	320	173
1940	2567	261	275
1945	2343	238	117
1950	4087	415	422
1956	5212	530	758
1958	5933	603	902

Sources:

Labour employed derived from *Trud v SSSR*, Moscow: Statistika, 1968, p. 121.

Powell index: see Table 1.

Note:

^a Includes self-employed, which are not available for later years, but are believed to be small in number.

Table 3

Million m² Living Space Constructed 1933-37

<i>1933</i>	<i>1934</i>	<i>1935</i>	<i>1936</i>	<i>1937</i>
7.2	6.0	4.6	5.5	3.5

Source: RGAE, 1562/1/1039, 79 (1939?).

Table 4

Growth in Urban Housing Stock (1926-1964)

	1926	1940	1950	1955	1960	1961	1962	1963	1964
Urban housing (million sq ms)	216	421	513	640	958	1017	1074	1130	1182
Average living space per urban resident (m ²)	8.2	6.5	7.0	7.3	8.8	9.1	9.3	9.5	9.7

Sources:

G. Andrusz, *Housing and Urban Development in the USSR*, Basingstoke: Macmillan, 1984, p. 22;

Narodnoe khozyaistvo SSSR v 1967g., Moscow: Statistika, 1968, p. 124;

TsSU, *SSSR v tsifrakh v 1967 godu*, Moscow: Statistika, 1968, pp. 27, 138.

Table 5

Labour in Construction, 1955-64 (nos in thousands; index)

	B		E		incs				wh-coll				O		Q			
	bldg	Index	incs:	bldg	Index	bl-coll	ws	index	ITR	index	ws	index	other	index	Aux	Index	Trans +	Index
	orgs			w:		ws									w		zhilkom	
1955	4953	100		3210	100	2814	100	221	100	104	100	71	100	714	100	1029	100	
1956	5212	105		3567	111	3137	111	247	112	110	106	73	103	584	82	1061	103	
1957	5513	111		4017	125	3527	125	280	127	122	117	88	124	494	69	1002	97	
1958	5933	120		4442	138	3921	139	311	141	128	123	82	115	469	66	1022	99	
1959	6226	126		4819	150	4256	151	355	161	136	131	72	101	421	59	986	96	
1960	6555	132		5143	160	4554	162	385	174	140	135	64	90	437	61	975	95	
1961	6642	134		5270	164	4638	165	416	188	148	142	68	96	432	61	940	91	
1962	6596	133		5172	161	4502	160	443	200	153	147	74	104	435	61	989	96	
1963	6723	136		5237	163	4544	161	461	209	157	151	75	106	444	62	1042	101	
1964	6896	139		5370	167	4640	165	492	223	163	157	75	106	449	63	1077	105	

coll B = E+O+Q

Source: *Trud v SSSR*, Moscow: Statistika, 1968, p. 121.

Table 6

Labour in the Building Materials Industry (numbers in thousands)

	1955	index	1960	index	1965	index
Total	1000.2	100	1493.4	149	1630.1	163
Inc:						
Workers	876.9	100	1309.9	149	1392.0	159
ITR	61.9	100	104.9	169	146.2	236

Source: *Trud v SSSR*, Moscow: Statistika, 1968, pp. 86-7.

Table 7

Distribution of Jobs in Construction: 1959, 1962, 1965

		1 Aug 1959	1 Aug 1962	2 Aug 1965
<i>armaturshchiki</i>	Fitters	37	34	36
<i>betonshchiki</i>	concrete layers	113	133	174
<i>buril'shchiki / pomoshchniki</i>	drill operators / assistants	15	14	17
<i>gazovarshchiki, elektrovarshchiki</i>	Gas and electric welders	65	104	135
<i>dorozhnye rabochie, mostovshchiki</i>	road and bridge builders	48	58	60
<i>zemlekopy</i>	Navvies	135	108	97
<i>izolirovshchiki</i>	Isolators	26	37	49
<i>kamenshchiki, pechniki,</i> <i>ogneuporshchiki, truboklady</i>	bricklayers, kiln operators, refractory workers, pipe layers	286	323	359
<i>krovel'shchiki</i>	Roofers	20	24	36
<i>malyary</i>	Painters	148	199	240
<i>mashinisty, motoristy /</i> <i>pomoshchniki</i>	drivers / assistants	218	336	479
<i>montazhniki konstruksii</i>	Fitters	82	87	119
<i>oblitsovshchiki</i>	Tillers	16	18	24
<i>plotniki</i>	Carpenters	376	397	417
<i>putevye rabochie,</i> <i>rabochie po remontu puti</i>	road layers, road repair workers	59	49	50
<i>slesari</i>	Fitters	281	315	376
<i>stolyary</i>	Joiners	48	45	44
<i>transportnye (podsobnye)</i> <i>rabochie,</i> <i>gruzchiki, vozchiki, vagonetchiki,</i> <i>otkatchiki</i>	transport (subsidiary) workers, loaders, carters, wagoners, Haulers	532	338	341
<i>trouboukladchiki</i>	pipe layers	26	36	46
<i>shofery</i>	drivers	31	41	48
<i>shtukatury</i>	Plasterers	257	280	286
<i>elektromontery</i>	Electrician	119	132	199
<i>elektroslesari</i>	electrical fitter	23	35	35
		2961	3143	3667

Source: *Trud v SSSR*, Moscow: Statistika, 1968, p. 228.

Table 8
Specialists in the Building Industry

	1 January 1941	1 July 1955	15 November 1964
With Higher Education:			
in building organisations	16,900	50,700	143,700
in project organisations	22,400	58,000	178,900
With Secondary Education			
in building organisations	23,700	67,600	302,900
in project organisations	10,600	37,000	100,600
Total:	73,600	213,300	726,100

Source: Trud v SSSR, Moscow: Statistika, 1968, pp. 264-5, 282-3.

Table 9

Women in the National Economy: Construction and Building Assembly Jobs

	National Economy:		Construction: (construction and assembly work)	
	% women employed	% women in industry and construction	No.	%
1929	27	30	64,000	7.0
1930			156,000	9.6
1931			189,000	10.1
1932			380,000	12.8
1933	30		291,000	16.0
1934			454,000	18.7
1935			450,000	19.7
1936			402,000	19.1
1937			488,000	20.6
1940	38	40	359,000	23.0
1945	55		489,000	32.0
1950	47		845,000	33.0
1952			(948,000)	34.0
1955			(989,000)	31.0
1956			(1,064,000)	31.0
1958*	47		1,335,000	30.0
1960			1,500,000	29.0
1961	48	39	1,544,000	29.0
1962			(1,494,000)	29.0
1963			(1,519,000)	29.0
1964			(1,035,000)	29.0

Sources:

Women and Children in the USSR: Brief Statistical Returns, Moscow: Foreign Languages Publishing House, 1963, pp. 98-102;

1958: *Women in the USSR: Brief Statistics*, Moscow: Foreign Languages Publishing House, 1960, pp. 33, 35, 37;

See also: N.T. Dodge, *Women in the Soviet Economy: Their Role in Economic, Scientific, and Technical Development*, Baltimore; Johns Hopkins Press, 1966, pp. 178-9.

Table 10

Women Executives and Professional Workers: Building Organisations

	No. of Women*	%	
1941	7,000	9	
1 December 1956	72,700	22	
1957	73,000	22	
1 December 1961		22	
	1 December 1956		1 December 1961
	No. of Women	%	%
	72,700		
inc:			
Heads of enterprises	6,900		5
Engineers	13,200	31	39
Technicians	9,600	44	52
Foremen	13,500	19	13
Rate-setters / dispatchers	300	30	62
Bookkeepers	11,800	41	27
Economists	7,500	67	70
Other unspecified	9,900	19	

* 1941-1957 equals 10 times increase

Sources:

Women and Children in the USSR: Brief Statistical Returns, Moscow: Foreign Languages Publishing House, 1963, pp. 120,122;

Women in the USSR: Brief Statistics, Moscow: Foreign Languages Publishing House, 1960, pp. 47, 48, 50;

See also: N.T. Dodge, *Women in the Soviet Economy: Their Role in Economic, Scientific, and Technical Development*, Baltimore; Johns Hopkins Press, 1966, p. 204.

Table 11

Training of Women at Technical Vocational Schools (1959-1961)

	Total	inc: building schools	Graduates in employment: building materials industry	construction
1959	583,000	42,000		
1960	689,000	84,000		
1961	739,000	104,000	2,500	131,600

Source:

Women and Children in the USSR: Brief Statistical Returns, Moscow: Foreign Languages Publishing House, 1963, pp. 156-7.

Table 12

Training of Women Workers at Technical Vocational Schools by Trade, 1961

		%	%
Total no. graduates	429,270	100	
including:			
Building, Wood-working and Building Materials Industry	129,038	30.06	100
of whom:			
Masons	28,320	6.60	21.95
masons in large-panel construction	891	0.21	0.69
firebrick liners	678	0.16	0.53
Painters	11,639	2.71	9.02
Plasterers	34,236	7.98	26.53
Carpenters	23,567	5.49	18.26
Joiners	15,696	3.66	12.16
wood-workers	609	0.14	0.47
concrete reinforcement assemblers	5,775	1.35	4.48
drivers, their assistants, and moterists of building			
machinery	3,157	0.74	2.45
building machinery fitters	923	0.22	0.72
[other not listed in source]	3,547	0.83	2.75

% calculations are own calculations

Source:

Women and Children in the USSR: Brief Statistical Returns, Moscow: Foreign Languages Publishing House, 1963, pp. 158, 161.

Table 13

Number and % Women Employed in Construction involving Physical Labour (1959)

	Construction:		Building materials industry:	
	No.	%	No.	%
1959	905,400	18	290,200	54

Source:

N.T. Dodge, *Women in the Soviet Economy: Their Role in Economic, Scientific, and Technical Development*, Baltimore; Johns Hopkins Press, 1966, pp. 178-9.

Table 14

Output of Building Materials, 1928-65

	1928	1932	1937	1940	1945	1950	1955	1957	1960	1963	1965
Cement (million tons)	1.850	3.478	5.454	5.675	1.845	10.194	22.484	28.896	45.520	61.018	72.400
Bricks (million)	2,790	4,900	8,666	7,455	2,030	10,240	20,825	24,671	35,500	35,600	36,600
Window glass (million m ²)	34.2	29.5	79.3	44.7	23.3	76.9	99.8	120.9	147.2	169.1	190

Sources:

Promyshlennost' SSSR: statisticheskii sbornik, Moscow: Statistika, 1964, pp. 318, 329, 343;

TsSU, SSSR v tsifrakh v 1967 godu, Moscow: Statistika, 1968, pp. 48-9, 58.

Table 15

Growth in Stock of Mechanised Building Equipment (1940-1965)

	1940	1950	1953	1960	1961	1963	1965
Excavators	2,100	5,900	12,500	36,800	43,500	56,500	69,200
Scrapers	1,100	3,000	7,300	12,200	13,000	15,800	20,100
Bulldozers	800	3,000	10,400	40,500	47,500	56,000	68,500
Cranes	1,100	5,600	18,000	55,000	62,000	71,500	83,300

Sources: TsSU, *SSSR v tsifrakh v 1967 godu*, Moscow: Statistika, 1968, p. 110; N. V. Baranov (ed.), *Industrializatsiya zhilishchnogo stroitel'stva v SSSR*, Moscow: Gosstroj SSSR, 1965, p. 4; B. Ya. Ionas, *Ekonomika stroitel'stva*, Moscow: Gosudarstvennoe izdatel'stvo literatury po stroitel'stvu, arkhitekture i stroitel'nym materialam, 1963, p. 188.

Table 16

Wages in Construction (average per day)

	Construction		inc.	bl-coll		ITR		wh-coll		National Economy	
	Rs	Index		Rs	Index	Rs	Index	Rs	Index	Rs	Index
1955	74.2	100		70.0	100	136.9	100	79.6	100	71.5	100
1960	91.7	124		88.7	127	138.2	101	83.5	105	80.1	112
1961	96.8	130		93.4	133	144.2	105	92.0	116	83.4	117
1962	99.3	134		95.9	137	144.4	105	93.5	117	86.2	121
1963	101.6	137		98.3	140	146.6	107	93.0	117	87.6	123
1964	106.0	143		103.0	147	146.6	107	95.1	119	90.1	126

Source: *Trud v SSSR*, Moscow: Statistika, 1968, pp. 138-9, 145.

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