17 November 1975

MEMORANDUM FOR THE RECORD:

SUBJECT: Cost of Soviet Construction Inputs

The attached information was forwarded by LDX to Gordon Shouse, EUR/SOV, State, in response to his request for data on construction costs for the new US Embassy in Moscow.

Attachment:
As stated

(S-Project 09075)

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Construction Wages

Attached is the latest available wage rate information for Soviet construction. Since this data are for the early 1960s and average wages have nearly doubled since then (see Table 1 attached) the wages for individual jobs have undoubtedly increased substantially. Moreover, according to Trud v sssr (1968), regular wages received by blue collar workers and white collar workers in construction in 1966 amounted to 83% and 79% of total payments respectively. The remainder represented bonuses of various types. It is not believed that these shares have changed significantly since then.

In addition to wages and bonuses, construction organizations must transfer to the state a sum equal to 6.1% of their wage bill to cover social insurance costs.

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Table 1

Average Wages for USSR Construction Workers

	Rubles Per Month a/	Index (1960=100)
1960	88.7	100
1961	93.4	105.3
1962	95.9	108.1
1963	98.3	110.8
1964	103.0	116.1
1965	108.4	122.2
1966	110.0	124.0
1967	116.3	131.1
1968	127.3	143.5
1969	136.6	154.0
1970	148.5	167.4
1971	153.6	173.2
1972	159.3	179.6
1973	164.8	185.8
1974	171.0	192.8

a/ Official Soviet data including basic wages plus bonuses.

Sources:

1961-62, Trud v sssr, 1968, p.145
1960, 1961-1964, Narodroye khozyaystuo sssr v 1964, p.555
1966-1967, Narodroye khozyaystuo sssr v 1967, p.657
1968-1969, Narodroye khozyaystuo sssr v 1969, p.540
1965, 1970-1973, Narodroye khozyaystuo sssr v 1973 g, p.586
1974, SSSR v tsifrakh 1974, p.169

Table 2.--MONTHLY SALARY RATES OF ENGINEERING-TECHNICAL PERSONNEL, SALARIED EMPLOYEES, AND MINOR SERVICE PERSONNEL IN CONSTRUCTION, BY POSITION AND VOLUME GROUP: 1940 TO 1965

(In rubles)

Position	Volume group[1]			
	I	II	III	IV
Engineering-Technical Personnel (ITR's)				
Manager (chief) and chief engineer of a trust (or administration)	300-350	250-300	225-250	200-225
Chief and chief engineer of a construction, construction-installation, repair-construction, or specialized administration (or section) of an administration of mechanization, or of an equivalent organization	225-250	200-225	180-200	160-180
Chief of a production, planning-production, technical, or production-technical department; chief mechanic, chief power specialist, chief technologist, or chief mine surveyer of a trust or administration	200-220	180-200	160-180	150-170
Chief of a planning, labor and wages, or equipment department; chief bookkeeper; chief and chief engineer of a norm-research station; chief of a laboratory of a trust or administration	180-200	160-180	150-170	140-160
Senior work superintendent (or chief of a section)	150-200	150-200	150-200	150-200
Chief of an office (or department) of supply of a trust or administration; chief of a production-technical or planning-production department; chief mechanic of a construction, construction-installation, repair-construction, or specialized administration (or section), or of an administration of mechanization	150-170	140-150	130-140	130-140
Work superintendent	130-160	130-160	130-160	130-160
Chief of a planning or supply department; chief bookkeeper (or senior bookkeeper with the rights of a chief bookkeeper) of a construction, construction-installation, repair-construction, or specialized administration (or section), of an administration of mechanization, or an equivalent subdivision; chief of the department of cadres or of design-estimate offices (or groups) of a trust or administration	130-150	130-140	120-130	120-130
Senior engineer, senior economist	115-130	115-130	115-130	115-130
Foreman or mechanical engineer of a section	100-125	100-125	100-125	100-125
Engineer-economist	100-120	100-120	100-120	100-120
Technician-normsetter	85-100	85-100	85-100	85-100
Salaried Employees				
Senior bookkeeper, senior appraiser, legal adviser, head of central warehouse, senior inspector, head of records office	80-105	80-105	80-105	80-105
Bookkeeper, appraiser, transfer worker, head of files, head of operations, head of horse corral, head of warehouse, senior payteller, senior cash clerk, inspector, head of individual bureau, coder, price fixer	70-85	70-85	70-85	70-85

Source: Wages in the USSR, 1950-1966: Construction, International Population Reports, Series P-95, No. 63, US Department of Commerce, October 1967.

Table 2. --MONTHLY SALARY RATES OF ENGINEERING-TECHNICAL PERSONNEL, SALARIED EMPLOYEES, AND MINOR SERVICE PERSONNEL IN CONSTRUCTION, BY POSITION AND VOLUME GROUP: 1960 TO 1965.--Con.

Position	Volume group[1]			
	I	II	III	IV
Salaried Employees--Con.				
Head of typing bureau (senior typist), agent, agent expediter, cash clerk, time-study clerk, senior accountant, senior statistician, and similar office personnel	60-75	60-75	60-75	60-75
Senior timekeeper, recorder, typist, accountant, and similar office personnel	55-65	55-65	55-65	55-65
Order clerk, duplicator operator, timekeeper, expediter, copyist, etc	50-60	50-60	50-60	50-60
Minor Service Personnel (MOP)				
Yardman, wardrobe attendant, locker room and shower attendant, etc	40-45	40-45	40-45	40-45
Janitor, watchman, messenger	40	40	40	40

[1] Volume groups are classifications of construction trusts and administrations (or equivalents) by gross volume of construction-installation work in millions of rubles. For trusts, group I is over 20 million rubles; group II, 12 to 20 million rubles; group III, 7 to 12 million rubles; and group IV, 5 to 7 million rubles. For administrations, group I is over 4 million rubles; group II is 2.5 to 4 million rubles; group III is 1.5 to 2.5 million rubles; and group IV is 1 to 1.5 million rubles. Salaries of salaried employees, minor service personnel, and some ITR positions do not depend on the volume classification of the organization.

Source: Yekel'chik, Voprosy, 1966, pp. 104-106, 109.

SELECTED WAGE DATA FOR CONSTRUCTION WAGEWORKERS COVERED BY THE 1960 UNIFORM NORMS AND RATES HANDBOOK, BY OCCUPATION

Occupation	Rank	Percent of all construction wageworkers in occupation	Average wage grade (6-grade scale)	Average wage rate coefficient	Average wage rate[1] (rubles per hour)
Total	--	100	3.07	1.342	.43
Electric arc welder	1	0.9	5.24	1.814	.58
Electric fitter	2	0.0003	5	1.756	.56
Pipe setter	3	0.23	4.89	1.73	.55
Machine operator (and helpers)	4	8.2	4.81	1.713	.55
Refractory bricklayer	5	0.9	4.7	1.687	.54
Machine driller	6	0.5	4.33	1.597	.51
Gas welder	7	0.3	4.27	1.588	.51
Blaster	8	0.1	4.2	1.571	.50
Riveter	9	0.07	4.11	1.55	.50
Communications lineman	10	0.06	3.97	1.519	.49
Sanitary-technical fitter	11	2	3.97	1.518	.49
Solderer	12	0.1	3.92	1.51	.48
Acid proofer	13	0.04	3.85	1.50	.48
Piledriver operator	14	0.08	3.81	1.488	.48
Sheet metal worker	14	0.08	3.81	1.488	.48
Blacksmith	15	0.22	3.79	1.484	.47
Pipeline worker-fitter	16	0.09	3.73	1.472	.47
Layout man	17	0.05	3.72	1.47	.47
Tilesetter	18	1.8	3.69	1.463	.47
Structural steel worker	19	3.5	3.68	1.461	.47
Boilermaker	20	0.35	3.65	1.456	.47
Construction work fitter	21	0.6	3.62	1.451	.46
Plaster mold maker	22	0.03	3.6	1.447	.46
Installation work fitter	23	8	3.59	1.444	.46
Glazier	24	0.5	3.56	1.439	.46
Stovesetter	25	0.6	3.55	1.437	.46
Joiner	26	0.5	3.55	1.436	.46
Pipelayer	27	1.3	3.5	1.427	.46
Plasterer	28	5.4	3.47	1.421	.45
Electrician	28	2.4	3.47	1.421	.45
Stonemason	29	6.6	3.43	1.413	.45
Turner	30	0.014	3.42	1.411	.45
Parquet floor layer	31	0.24	3.37	1.401	.45
Painter	32	3.8	3.03	1.388	.44
Bridgebuilder	33	0.2	3.29	1.386	.44
Asphalt spreader	34	1.54	3.15	1.355	.43
Carpenter	35	9.7	3.07	1.341	.43
Planer operator	36	0.002	3	1.328	.42
Insulater	37	0.9	2.94	1.318	.42
Ironworker	38	1.42	2.78	1.290	.41
Trackworker	39	0.6	2.73	1.282	.41
Machine tool operator	40	0.3	2.71	1.279	.41
Concrete worker	41	3.4	2.7	1.277	.41
Roofer	42	1.26	2.63	1.265	.40
Landscape gardener	43	0.3	2.61	1.261	.40
Ventilation installer	44	0.07	2.56	1.253	.40
Roadworker	45	2.06	2.44	1.232	.39
Sawyer	46	0.07	2.43	1.23	.39
River worker	47	0.6	2.42	1.229	.39
Crane rigger	48	5.8	2.37	1.221	.39
Ditchdigger	49	3.3	2.29	1.206	.39
Hydraulic drill operator	50	0.02	2.19	1.19	.38
Subsidiary transportation worker	51	18.9	1.25	1.039	.33

[1] Equals the average wage rate coefficient multiplied by the basic wage, 0.32 rubles per hour.

Source: Mitin, Spravochnik, 1962, pp. 218-219.

Comments on construction materials and construction costs:

1. The prices of construction materials and excavation work shown in Tables 1 and 2 represent the prices introduced on 1 January 1969. The most recent official indices (1973) of Soviet construction materials' prices and construction costs assert that costs have remained stable and even declined slightly since 1969. Although we are skeptical that these indices correctly reflect Soviet price movements, the Embassy negotiations offer an excellent opportunity to use Soviet data to our advantage.

2. The wide disparity in the cement prices illustrates the necessity to pin the Soviets down on the exact specifications of the materials to be supplied. A successful price negotiation may merely result in the Soviets providing materials that are of a lower quality. For that matter, portland pozzolanic and portland slag cement are not really comparable to US cement of the same name because the clinker content is lower in Soviet cement. The "marks" are a technical designator which, among other things, measures the compression strength of a test cube after 28 days of hardening where the strength is measured in kilograms per square centimeter.

3. For some of the other products where technical specifications are specially crucial and the data are available, we have presented a price range.

4. OER has recently completed a study comparing US and Soviet construction costs. The study computes price ratios for estimating Soviet costs in rubles based on US costs of comparable facilities built in the US. Although this study has not yet been published, we would be willing to provide an advance draft if you desire.

Table 1

COST OF SOVIET CONSTRUCTION MATERIALS

	Unit of Measure	Wholesale Price (rubles)	Delivered Price to Moscow Oblast (rubles)
Portland Cement with more than 5% impurities a/	One Metric		
Mark 300	Ton	14.6	18.5
Mark 400		16.6	20.5
Mark 500		19.0	23,0
Mark 600		21.7	25,7
Portland Cement with less than 5% impurities a/	One Metric		
Mark 300	Ton	16.1	20,0
Mark 400		18.2	22,2
Mark 500		21.0	25,0
Mark 600		23.9	28,0
Portland Pozzolanic Cement a/	One		
Mark 200	Metric	11.5	15,3
Mark 300	Ton	13.2	17,0
Mark 400		15.0	18,9
Mark 600		17.1	21,1
Portland Slag Cement a/	One		
Mark 200	Metric	9.72	13,5
Mark 300	Ton	11.7	15,5
Mark 400		13.6	17,5
Mark 500		15.4	19,3
High Grade White Portland Cement a/	One Metric		
Mark 300	Ton	40.3	45,0
Mark 400		45.9	50,7
Mark 500		56.9	62,0
Linoleum - depending on type and thickness b/	Square Meters	2.1-4.5	2.24-4,8
Construction Gypsum c/ (alabaster)	Metric Ton	N.A.	19,8
Construction lime d/	Metric Ton	--	23,6
Ceramic Wall Tile depending on type and thickness e/	Square Meters	2.4-4.05	2.63-4,33
Ceramic Floor Tile d/	Square Meters	1.65-5.3	1.94-5,78
Asbestos Cement Shingles f/ (400 x 400 x 4mm)	1,000	62.54	73,0

Table 1 UNCLASSIFIED

COST OF SOVIET CONSTRUCTION MATERIALS

	Unit of Measure	Wholesale Price (rubles)	Delivered Price to Moscow Oblast (rubles)
Clay Brick g/ depending on quality	1,000 Units	N.A.	24.4-45.2
Silicate Brick g/ depending on quality	1,000 Units	N.A.	15.5-23.7
Natural sand h/	cubic meters	N.A.	1.15
Gravel for construction work depending on size	cubic meters	N.A.	1.9-2.65
Window glass of high quality i/ depending on thickness	square meters	0.46-1.52	0.58-1.96
Construction lumber j/	cubic meters	--	40.9
Various types of steel j/	metric ton	--	120.0

TABLE 2

TYPE OF WORK	Unit of Measure	Estimated Cost in Moscow (rubles)
Breaking up of rocky ground k/ depending to type of material	cubic meters	0.4-3.(
Excavation of sandy earth k/	cubic meters	
Left at Site		0.3
Removed from Site		0.9
Excavation of clay k/	cubic meters	
Left at Site		0.6
Removed from Site		1.2
Excavation of semi-rock earth k/	cubic meters	
Left at Site		0.8
Removed from Site		1.3
Excavation of rocky earth k/	cubic meters	
Left at Site		0.8
Removed from Site		1.7

FOOTNOTES:

a. Gosudarstvenniy Komitet Soveta Ministrov SSSR po Delam Stroitel'stva (Gosstroy SSSR), Tsennik No. 1, Srednikh Raionnikh Smetnikh Tsen Na Materiali, Izdeliya i Konstruktsii, Chast I, Stroitel'niye Materiali. Izdatel'stvo Literaturi po Stroitel'stvu: Moskva, 1968, p. 80-83

b. See a above, p. 39.

c. See a above, p. 19.

d. See a above, p. 27.

e. See a above, pp. 27-28.

f. See a above, p. 20.

g. See a above, Chast IV, Mestniye Materiali, p. 60.

h. See a above, Chast IV, Mestniye Materiali, p. 71

i. See a above, p. 75.

j. C.A. Yefryemov, V.I. Malyugin, and M.A. Turianskiy, Noviye Smetniye Normi i Tseni v Stroitel'stve, Izdatel'stvo Literaturi no Stroitel'stvy: Moskva, 1969, pp. 27-28.

k. Ministerstvo Energetiki i Elektrifikatsii SSSR, Sbornik No. 5, Ukrupnennikh Pokazateley Vosstanovitel'noi Stoimosti Zdaniy i Sooruzheniy Elektricheskikh Stantsiy, Elektricheskikh i Teplovikh Setey Dlya Pereotsenki Osnovnikh Fondov. Energiya: Leningradskoye Otdeleniye, 1970, p. 30.