MARKET STUDY

ON

HOUSING AND BUILDING MATERIALS

IN

THE REPUBLIC OF KOREA





PACIFIC CONSULTANTS CORPORATION

Seoul, Korea



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ON

HOUSING AND BUILDING MATERIALS

THE REPUBLIC OF

Dept. of External Affairs Min. des Affaires extérieures

JUN 28 1998

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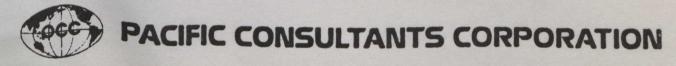
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EXECUTIVE SUMMARY AND RECOMMENDATIONS

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With the recent economic growth and reform in Korea, many people have moved to major cities seeking jobs in factories/offices. Moreover, many Korean people have begun to prefer the single generation family system instead of traditional large family system. As towns and cities became full of people, the shortage of housing and other subordinate spaces emerges as a serious problem.

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The demand for residential homes as well as for more sophisticated and distinctive small scale buildings from the private sector is expected to help sustain the expanding trend of domestic construction which began with the preparation for the 1988 Olympics in Seoul. In 1989, private sector accounted for an estimated 51.8% of the market with over 6.16 trillion Korean Won (US\$ 9.2 billion) in orders.

Korea's expanding economy and continued shortage of residential housing will guarantee demand over the next several years. In addition to government sponsored projects for building 1.1 million housing units, the private sector is expected to build another 900,000 units by the end of 1992.

The government has planned a number of construction projects with the largest known as the New Town Development Plan. This plan was developed to construct five new cities on the outskirts of Seoul to accomodate some 340,000 residential units by 1993. In addition to this, the Korea National Housing Corporation (KNHC) will supply 75,000 residential units mainly for lease in 1990.

The building of commercial establishments, which usually refers to offices, lodging facilities, resort facilities and shopping centers, has been rapidly increasing mostly in Seoul in recent years. Of the total land approved for construction in Seoul in 1987, commercial buildings accounted for only 39.5%, but the rate climbed to 46.5% in 1988 and again up to 49.9% in 1989. In the first four months of 1990, the share of commercial buildings in the total land approved for construction reached 50.1%.

With the recent economic growth and reform in Kores, many people have moved to major cities seeking jobs in factories/offices. Moreover, many Korean people have begun to prefer the single generation family system instead of traditional large family system. As towns and cities became full of people, the shortage of housing and other subcrdinate spaces emerges as a serious problem.

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The building of commercial establishments, which usually refers to offices, lodging facilities, resort facilities and shopping centers, has been rapidly increasing mostly in Secul in recent years. Of the total land approved for construction in Secul in 1987, commercial buildings accounted for only 19.5%, but the rate climbed to 46.5% in 1988 and again up to 49.9% in 1989. In the first four months of 1990, the share of commercial buildings in the total land approved for construction reached 50.1%.

Construction permits for commercial buildings in Seoul were issued for 4.89 million sq. meters of land in 1987, but the land approved for construction of commercial buildings rose 21.7% to 5.95 million sq. meters in 1988 and 54.9% to 9.22 million sq. meters over 1989. With the approved land totaling 3.87 million sq. meters in the January-April period, the total space allocated for commercial buildings in 1990 will reach 11.6 million sq. meters, up 25% over 1989, if the growth continues at the current pace.

The construction market in Korea has been a typical cost market. Nevertheless, the increasing level of income and quality of houses along with the recently emerging mood for consumption has made the demand for luxurious materials soar. The trend for high-quality materials combined with preference for foreign goods has accelerated the import of construction materials. In view of this, most import agents in Korea make excessive profits nowadays because they not only sell but also execute the work themselves.

The market for construction materials is expected to stabilize except for small amount of seasonal fluctuation. Normally, 35 - 40 % of the demand for construction materials is concentrated from March through May as this is the peak period for purchasing.

The market size of granite was estimated to be US\$ 496.8 million in 1988 and US\$ 451.3 million in 1989 with more than 90 % of the domestic demand supplied from the local market. In regards to imports, 91 % of the granite and marble comes from Italy, thus making the potential for Canadian sales of granite very limited. Granite produced in Korea is usually white, grey, or light red while commonly imported products are unprocessed New Imperial Red and Catao Bon Nite with dimensions of more than 2m x 3m x 3m.

The demand for doors, windows and frames is expected to be US\$ 863 million in 1990 as large housing projects should create a large demand. However, imports will not increase much because of the government policy to protect local manufacturers and the supply to satisfy the increasing demand. The import market is slowly increasing from US\$

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1.8 million in 1988 to US\$ 2.1 million in 1989. The U.S.A. held 42 % of the import market in 1989, while Canada which just started exporting to Korea in 1989 held 7%. More than 60 % of imports were wooden products mostly from the U.S.A.(51%), Japan(22%) and Canada(10%). Plastic products, where demand is expected to reach US\$ 173 million, are expected to have the most potential due to the high-quality and consumers' preference for the products.

Fiber glass for ceiling materials seems very promising and the market was forecasted to be US\$ 43-50 million in 1989. The demand for fiber glass is supplied from the local market and thus the imports decreased from US\$ 950 thousand in 1988 to US\$ 722 thousand in 1989. Canada's position in the import market is very small with the market share of 0.2%.

The roofing material market is generally dependent on imports which suprisingly increased from that of 1988 by more than three times. The market for asphalt shingles expanded to US\$ 14.5 million in 1989 and is expected to be approximately US\$ 20 million in 1990. However, the price has decreased about 40% since imports began in 1984. Cedar is mostly imported from Canada and the U.S.A. and the market size is estimated to be approximately US\$ 4.3-5.8 million. Hence, the import market seems to increase due to the soaring demand for various high-quality exterior materials.

The demand for heating equipment is generally satisfied by domestic manufacturers. The electric house-hold boilers of 15,000-30,000 Kcal/H is prevalent in the market, however gas boilers seem to dominate the market in the long run. Imports accounted for US\$ 29.5 million in 1989.

The market size of the smart home system was around US\$ 28.8 million in 1989, and is estimated to double in 1990. Moreover, the market should reach US\$ 100 million by 1991.

The domestic market size for tiles was estimated to be US\$ 275.5 million in 1989 and US\$ 316.3 million in 1990 with local manufacturers supplying 85% of the demand. However, imports are expected to expand in the near future. Italian

1.8 million in 1988 to US\$ 2.1 million in 1989. The U.S.A. held 42 % of the import market in 1989, while Canada which just started exporting to Korea in 1989 held 7%. More than 60 % of imports were wooden products mostly from the U.S.A. (51%), Japan(22%) and Canada(10%). Plastic products, where demand is expected to reach US\$ 17% million, are expected to nave the most potential due to the high-quality and comentar's preference for the products.

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tiles, which can satisfy upper-class Koreans with the decoration-conscious trend and current consumption mood for luxurious goods, have been very popular in Korea and hold more than 20% of the import market. Recently, the import of lower quality tiles from South-East Asian countries increased mainly to meet the recent construction boom. Ceramic tiles took a majority of the imports with a share of 87.6% in 1989. The quality of locally-made tiles is regarded as good and are exported to several countries throughout the world.

The local market size of sanitary fixtures and bathroom kits is estimated to be US\$ 244.3 million and US\$ 46.9 million, respectively. However, there is a great shortage of these products due to the construction boom of residential housing. The government lowered the trade tax rate on the quota system from 20% to 5% for the purpose of supplementing imports. It resulted in the importation of low quality products which damaged the impression of imported products. This on-going shortage tends to raise the market price and then double the manufacturers' price locally. The demand for imported luxurious goods with a price level between US\$ 4,313 and US\$ 11,500 increased gradually where ceramic products make up 95%. The import market for these products accounted for US\$ 24.5 million in 1988 and US\$ 38.8 million in 1989, and is dominated by a U.S.A. with the share of 43.8%.

Two Korean manufacturers are dominating the gypsum board market. The 7mm standard gypsum board is being replaced with the 9mm standard from 1990. The estimated demand for 9mm alone in 1990 is 36.4 million square feet amounting to over US\$ 43.1 million. Recently, the market is facing a crisis of over-supplying. Most of the asbestos boards are imported from Canada and South Africa.

The growth potential of the carpet industry reached its peak in 1988, but the demand for local products bagan to drop fast as imported carpets began to dominate the market. The carpet market amounted US\$ 72 million in 1988 and is expected to drop a little in 1989. The import market of these products has expanded from US\$ 26.9 million in 1988 to US\$ 29.6 million in 1989. Belgium and the U.S.A. dominate the market with shares of 28% and 24%, respectively.

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Recommendations

- In view of the facts of a rapid change of Korean consumer's living style chasing a new style of modern life in compliance with an ever rising GNP per capita income level, there should be a large demand for many Canadian construction materials and thereby several opportunities to secure Korean end-users. This is based on the general housing market assessment that Canadian building materials are known to be a world-class quality product for housing and office buildings.
- Keeping the above statement in mind, one of the best ways of promoting the sales of Canadian building materials is to provide the Koreans with the opportunity to recognize quality and merit of the Canadian building products. Thus, it is recommended that Canada organizes a permanent exhibition of Canadian building products and their practical uses by building a model house with all Canadian building decorations to examplify the Canadian building system within Korea. For example, an integrated Canadian model house and/or office building beginning with the Canadian timber housing system to almost every aspects of building component materials including sophisticated Canadian smart offices and housing systems could be set up in order to demonstrate to potential Korean end-users. From this Canadian model house Korean end-users will establish a direct connection with the various concerned Canadian suppliers of building and housing materials.
- In order to secure a large share of the Korean market, it is recommended that Canada internally organize some form of association and/or union of Canadian manufacturers and suppliers to simplify their export channels to Korea, and at the same time to make sure of their competitive positions compared to other supplying countries. In the short term, it is highly recommended for Canadian companies to designate a Korean firm as their agent to secure more Korean clients within the public and private sectors. In view of this, the designated Korean company can promote the sales and public relations for Canadian products directly towards potential Korean clients.

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- Chapter I. BACKGROUND I.1. The Trend and Prospect of Construction Industry in the Korean Economy
- I.2. Demand and Supply of Housing increased 6.5% in 1989 following the 12.00 in 1988 and 12.8% in 1987. However, it is also true that in the middle of soaring growth of an under developed country

Chapter I. BACKGROUND

- I.1. The frend and Prospect of Construction Industry in the Korean Economy
 - 1.2. Demand and Supply of Housing

- I.1. The Trend and Prospect of Construction Industry in the Korean Economy
 - 1. Economic and Demographic Profile

It is well known that Korea's recent explosive economic success has been due mainly to the export of products made with low labor costs. Thus, the Korean economy is quite vulnerable to the international trade atmosphere although the vulnerability is improving gradually through the efforts of the government and public.

In spite of increasing protectionism in world markets, pressures to open the domestic market and the appreciation of the Korean currency(won), Korea's GNP increased 6.5% in 1989 following the 12.2% in 1988 and 12.8% in 1987. However, it is also true that in the middle of soaring growth of an under-developed country like Korea, an unfavorable international trade climate to the export- driven type economy can be fatal.

In view of this, Korean policy-makers immediately recognized the situation and turned their attention toward an economy driven by domestic demand. Thus, the domestic construction industry was revitalized not only by actual demand (Korea's housing shortage problem is very urgent) but also by a government policy to activate the market by creating new employment and demand for construction materials.

Some say this is a critical period for Korea's economy, however the problems which have piled up and have been postponed after the incessant drive for quantitative economic expansion are rising the surface. For example, the labor class has begun to form unions to demand their shares of the economic growth, while a general call for social welfare and equitable distribution of wealth has been increasing.

Although investment in facilities began to improve gradually in 1989, the investment proportion is still not enough to revive the slow progress of the manufacturing industry. The drastic wage increases and constant struggles to achieve it are thought to be the biggest problem within the economy. Moreover, wage increases and labor problems have caused export prices to raise, thus causing

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At present, optimism and pessimism on the Korean economy co-exist, but most people agree that 1990 will be a major turning point.

<Table 1 -1> Major Economic Indicators of Korea

Year	GDP GROWTH (%)	GDP (U\$	EXP Billion	IMP	CPI Rise (%)	GNP/CPT (US\$)	GNP Growth (%)
1982		69.4	21.9	24.3	7.3%	24	7.2%
1983		76.0	24.4	26.2	3.4%	2002	12.6%
1984		82.4	29.2	30.6	2.3%	2158	9.3%
1985		83.7	30.3	31.1	2.5%	2194	7.0%
1986		95.3	34.7	31.6	2.8%	2503	12.9%
1987		111.6	47.2	41.0	3.0%	3098	12.8%
1988		142.3	60.7	51.8	7.2%	4040	12.2%(p)

Source: USA-Asia Statistical Handbook, Heritage Foundation

2. Future Economic Trends

Korea is well aware of the peril of a protracted regression of exports and is willing to make every effort to remain on the right track. Hence, the prospect seems to be encouraging.

Labor unrest, the main element in Korea's recent economic problems, seems to have reached its peak and labor relations are stabilizing.

Expansion of the domestic market will slow down, however continued excessive spending and sumptuous moods should persist. The forecasted GNP growth rate is 6.5% for 1990, the same as in 1989, but the general economic conditions will improve.

Imports are expected to increase at a rate of about 10% and with the combination of domestic demand and market opening pressures, thus the trend is forcasted to remain the same.

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Total investment will increase slightly but investment in construction will take a large proportion of the monies allocated.

3. The Construction Industry in the National Economy

Since the construction industry has a huge backward linkage effect by creating the need for producing construction materials, as well as job opportunities and other added values, the Korean government has made use of the construction industry as a means of activating the market. Moreover, the government recently started to impose a large tax on empty land that did not have any structures on it and thereby stimulating the domestic construction industry. Most of the land-owners who had not developed any structures began to turn their eyes toward construction to avoid tax problems.

Also, Korea has long suffered from the shortage of residential and commercial space mainly due to it's geographic configuration.

The commercial space shortage problem is mostly in the Seoul area where a quarter of the whole population resides and half of the vehicles are registered in. As of now, the empty office space takes up only 2 - 3 % of all the office space in Seoul which is the lowest rate since the 1980's.

First of all, the entry of foreign companies and local firms into the city, new branch office networks especially in the financial sector, and the activation of the service industry has all expedited the expansion of demand for office space. Secondly, restrictions on construction by the government are getting tighter due to the traffic problem in the downtown area. Finally, a shortage of empty land space is limiting the supply thus creating a serious situation in downtown Seoul where most of the demand is concentrated.

To solve the urgent problem of living space shortage, a long-term construction plan has been constantly carried on to provide two million housing units by 1992 among which 450,000 houses are to be built with 4 trillion Korean Won in 1990 alone. In view of this, the govern-

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ment's budget outlay for the construction sector for 1989 jumped 32%. The governmental guideline facilitates the construction of multi-purpose buildings (for both residential and office use) as well as apartment buildings.

According to the Ministry of Construction's forecast regarding the 1990 construction business, the combined floor space of approved buildings, boosted sharply by the on going building boom, will jump 16.2% from 85,299,000 sq. meters to 99,134,000. (Feb. 14th, 1990, The Korea Herald)

Although the future of Korean construction both domestic and abroad is very bright overall, optimistic and pessimistic views co-exist. According to recent research by the Korea Institute for National Development exploring the domestic housing market, there may be a decline in purchase from the latter part of 1990 to about the beginning of 1992 due to the financial difficulties expected by middle class buyers of houses. Nevertheless, Korean domestic construction is expected to grow steadily by more than 10% per year in the 1990's. Korea's rapidly expanding economy will spill over into demand for both public and private construction.

<Table 1-2> Forecast for the Construction Industry(1990)

competitively. Overseas con	(Unit:'000	sq.m. /	US\$ billion)
Middle-East reached US 512.	1989	1990	change(%)
Total Space Residential Commercial Others	85,299	99,134	16.2
	45,207	55,065	21.8
	25,538	29,262	14.6
	14,540	14,807	-2.0
Order receipt Construction Civil Engineering Specialized Public Private	227.3	263.1	16
	152.3	160.0	5
	65.2	87.0	33
	9.1	16.1	77
	97.7	100.1	2
	129.5	163.0	26

Source: Korea Herald, Feb. 14th, 1990

ment's budget outlay for the construction sector for 1989 jumped 12%. The governmental guldeline facilitates the construction of multi-purpose buildings (for both residential and office use) as well as apartment buildings.

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Table 1-2> Forecast for the Construction Industry(1990)

	rder receipt Construction Civil Engineering Specialized Public Private

Source ; Korea Herald, Teb. 14th, 1990

account for les	Demand Formula	Coefficient
Residential	D(1t) = -483567 + 0.0571*GN $< -7.12 > < 33.49 >$	NPt 0.97
Non-residential	D(2t) = -541815 + 0.0596*GN $< -6.50 > < 28.45 >$	NPt 0.96
Engineering work	D(3t) = -395335 + 0.0824*GN $< -2.77 > < 22.98 >$	

Notes: D = demand during t period GNPt = GNP of the t period

< > = value of t

Source : Construction Association of Korea

4. Overseas Construction

The Korean overseas construction industry enjoyed prosperity during the early 1980's as countries from the Middle-East with an over abundance of of oil money, invested heavily to upgrade their infrastructure. Thus, Korean construction companies with low labor costs and adequate technology were able to position themselves competitively. Overseas construction orders once swelled to US \$13.7 billion in 1981, of which orders from the Middle-East reached US \$12.7 billion.

However, the progress made by depending on a single market gradually began to collapse due to the drop in oil prices and the Iran-Iraq war. Moreover, changing demand for high-tech construction skills and competition from lower wage countries aggravated the problems of the Korean construction industry.

The ending of the Iran-Iraq war and the recent award of Libya's US \$5.3 billion "Great Man Made River" project began to revive the overseas construction business. For the 1990's, overseas orders are expected to improve gradually, but not to the extent of the early 1980's. Korea must diversify into markets like Japan, the Soviet Union, the United States and China for continued competitiveness.

Table 1-1> Korean Formula for Projecting

Notes t D = demand during t period GNPt = GNP of the t period

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The Middle-Eastern market still remains as the most important market for the Korean overseas construction business, accounting for 78.1% in 1988. The Asia region is a distant second, accounting for 15% of total overseas orders while Latin American, African and other regions account for less than US\$ 100 million.

Presently, the termination of the Iran-Iraq War is expected to bring in major reconstruction projects. According to the Korean Overseas Construction Association, Iran and Iraq are expected to place orders totaling US\$ 77 billion on reconstruction over the next 5 years out of which Korean firms are expected to receive some US \$14.9 billion.

<Table 1-4> Projections for Korean Firms Receiving
 Orders from Iran & Iraq (1989 - 1993)

			(US\$ billion)
	Iran	Iraq	Total
Until 1988	1.27	6.43	7.70
OCAK	9.0	5.90	14.90
*KIET	9.0 - 10.1	6.3 - 6.9	15.3 - 17.0

Note: * refers to Korea Institute for Economy and

Technology

Source: Overseas Construction Association of Korea

However, to avoid over-dependence on a single market, the Korean construction companies are starting to diversify their overseas markets. In particular, the United States, Soviet Siberia, Japan, and China are targeted markets for future development.

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<Table 1-5> Overseas Construction Orders
(1985 - 1988)

			51			(unit :	(unit : US \$	million)
	1985	0/0	1986	0/0	1987	0/0	1988	0/0
Total		100.0	2,239	100.0	1,711	100.0	1,602	100.0
Middle East (Saudi Arabia) (Libya) (Iraq)	4,285 1,640 992 1,162	91.4 35.0 21.1 24.8	1,242 517 353 25	55.5 23.1 15.7	1,314 473 404 251	76.7 27.6 23.6 14.7	1,251 433 618 24	78.1 27.1 38.6
Southeast Asia & Pacific	349	7.5	955	42.6	366	21.4	302	18.9
Africa & Latin America	56	1.2	43	1.9	31	1.9	48	3.0

Source : Overseas Construction Association of Korea

<Table I-5> Cversess Construction Orders

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I.2. Demand and Supply of Housing

1. Changes in Living Patterns by Economic Growth

Traditionally, Koreans have resided under the large-family system (many generations living together) as they mainly lived in an agriculture-based economy and thus needed all the family members for labor. However, with economic growth and reform, more and more people are needed in the factories / offices and have moved to major cities. Naturally, as the towns and cities became full of people, the shortage of housing and other subordinate spaces emerged as a serious social problem.

Koreans began to prefer the single generation family system as 'possessing one's own house' became one of life's goals. This of course is difficult for the average Korean because Korea has very little land compared to the large population, thereby resulting in very high real estate costs.

<Table 1-6> Housing Supply (1975-1987)

Housing Supply Rate Housing Ownership Rate

1975 74.4 63.1
1980 74.5 58.4
1983 71.8
1985 69.7 53.5
1987 69.2

Note: 1. Housing supply Rate= total houses per applied households for supply

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2. Housing ownership Rate = total house owner
per ordinary household
Source: Economic Planning Board (EPB)

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Source: Economic Planning Board (EPR)

(unit:'000)

1988 1989(E) 1990(p) 1991(p) 1992(p)

Family Units 9612 9913 10224 10554 10874

Total Residences 6693 6953 7248 7570 7926

Residence const. 340 360 400 430 470

Housing Rate (%) 69.6 70.1 70.9 71.8 72.9

Source: Overseas Construction Association of Korea

The low housing rate combined with a shortage of residential property created a serious problem in real estate speculation. The housing problem is even worse in the Seoul area where the housing supply rate is only 58%, far below that of the nation's total rate.

To improve this problem, the government has announced plans to increase the housing rate to 72.9% by 1992. During the 5 years starting in 1988, an estimated two million residential units are expected to be constructed. For this year only, approved areas of construction are expected to increase 16.5% from the previous year, resulting in 99 million square meters.

Current Situation and Future Trends for the Demand and Supply of Housing

The demand for residential homes as well as for more sophisticated and distinctive small scale buildings from the private sector is expected to help sustain the expanding trend of domestic construction which began with the preparation for the 1988 Olympics in Seoul. In 1989, the private sector accounted for an estimated 51.8% of the market with 6.16 trillion Korean Won (US \$ 9.2 billion) in orders.(Jardine Fleming, Report on the Korean Construction Industry, Sep. 1989, P9)

Table 1-79 Housing Rate Projection (1982-1992)

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source: Overseas Construction Association of Mores

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<Table 1-8> Statistics of the Construction Industry

he government played a r	1985	1986	1987	1988
Sales Growth (%) Interest to Sales (%) Stock Issued (Mil. Won) Equity Growth (%)	7.9	9.1	14.5	7.8
	7.0	8.5	8.7	7.5
	15014	47299	284135	525038
	1.1	7.8	10.4	25.3

Source : Korea Stock Exchange

<Table 1-9> Construction Orders (1985-1989)

By that tim	0, 268,800 0	nits which is	(Unit : Mi	llion Won)
1985	1986	1987	1988	1989
4,205,273	4,971,268	5,667,002	6,771,730	7,860,600
C				

Source : Construction Association of Korea

<Table 1-10> No. of Houses Constructed (1985-1989)

construct	75 thousan	ia linuses nel	(Unit	: '000)
1985	1986	1987	1988	1989
227	288	244	317	360(E)

Source : Economic Planning Board (EPB)

Korea's expanding economy and continued shortage of residential housing will guarantee demand over the next several years. In addition to government sponsored projects building 1.1 million housing units, the private sector is expected to build another 900,000 units by the end of 1992.

Public Construction ProjectsNew Town Development Plan

The government planned a number of construction projects including two large residential satellite cities. Some cities are located on the outskirts of Seoul and they are expected to accomodate some 340,000 residential units.

The five newly-constructed-residential-cities are Ilsan, Jungdong, Sanbon, Pyungchon and Pundang. In addition to the already distributed units, 21,600 units in Pundang, 10,400 in Pyungchon, 10,400 in Sanbon, 10,000 in Ilsan and 12,100 in Jungdong will be completed by 1990. Moreover, a long-term plan extending to 1993 plans to construct an additional 282 thousand units in the 5 cities. By that time, 266,500 units which is equivalent to 63% of all the apartment units in Seoul area will be partly settled. Also, private construction companies have plans to build 6,000 units of housing in the Seoul area.

In total, with new expressways and the west coast industry park, an estimated 33 trillion Korean Won will be spent on these projects.

The Korean National Housing Corporation(KNHC), executive administrator housing policies, announced that they will construct 75 thousand houses mainly for lease in 1990. From 1990, KNHC began a new system of housing quality maintenance to upgrade quality, strengthen the quality control of materials, thoroughly supervise construction operations and extend the period of construction. One of KNHC's distinctive plans this year is to enlarge the proportion of prefabricated houses to save expensive labor costs. Also, KNHC plans to store those materials which they expect will fall short of demand and to purchase some forign products which are of similar quality and have reasonable prices.

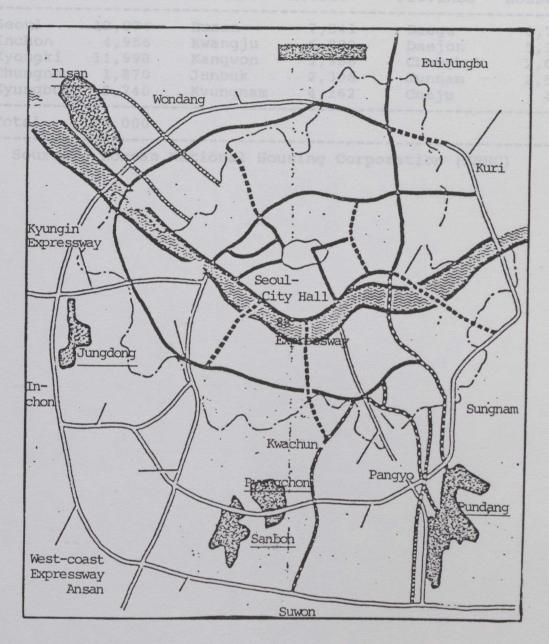
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In total, with new expressions and the west coast industry park, an estimated 13 trillion Morean Won will be spent on these projects.

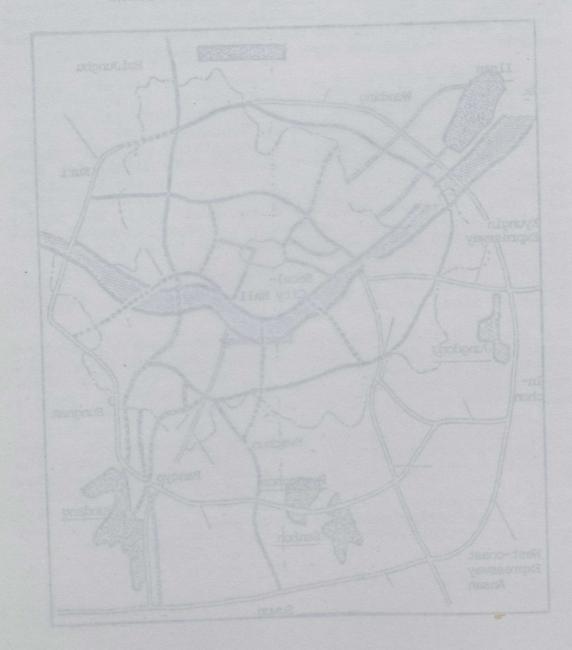
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<Figure 1- 1> Location of Five New Towns



Source: The Chosun Ilbo, April 12, 1990

<Figure 1- 1> Location of Five New Towns



Source : The Chosun Ilbo, April 12, 1990

<Table 1-11> KNHC's House Construction Plan (1990)

City or Province	Number of	City or	Number of	City or	Number of
	Houses	Province	Houses	Province	Houses
Seoul	13,974	Busan	7,541	Daegu	6,745
Inchon	4,956	Kwangju	6,299	Daejon	5,340
Kyongki	11,998	Kangwon	1,956	Chungbuk	2,026
Chungnam	1,870	Junbuk	2,306	Junnam	2,587
Kyungbuk	2,740	Kyungnam	4,262	Cheju	400
Total	75,000				

Source : Korean National Housing Corporation (KNHC)

<Table 1-11> KNHC's House Construction Plan (1990)

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Chapter II. MARKET ANALYSIS BY SEGMENT

- II.1. Exterior Structural Components
- II.2. Building Engineering and Equipment
- II.3. Interior Fittings

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11.1. Exterior Structural Components 11.2. Building Engineering and Equipment 11.3. Interior Fittings The Korean construction market in general has been and still is a typical cost market. Neverthless, the increasing level of income and quality of houses, along with the recently emerging mood for consumption has made the demand for luxurious materials soar. The demand is strong especially for tenement and individual houses and is expected to increase because of the lack of suitable sites for apartments. Roofing and interior materials are at the top of the list of the increasing demand for luxurious high-quality materials. These trends combined with preference for foreign goods are accelerating the import of construction materials. As we look at the upper classes, the people want only materials of exceptional quality. Korean import agents are making excessive prof its nowadays because they not only sell but also execute the work themselves. Also, the consumers have no idea what the actual import prices are.

The construction material market is expected to stabilize except for a little bit of seasonal fluctuation from time to time. Normally, 35 - 40 % of the demand for construction material is concentrated from March through May. Here is a brief outlook for a few fundamental materials.

* Steel bars

- Expected shortage of 200,000 tons during March May
- Plans to import from Japan, Brazil, China FOB basis import price 300 350 \$/ton

* Cement

- Increase of demand by 5.3% in comparison with the previous year, total 29 million ton forecasted
- Concentrated demand in the March -May period can be overcome with storage saved during the winter

* Ready Mixed Concrete

- Increase of demand by over 10% : shortage is expected
- Shortage may be accelerated by transportation problems

* Plywood

- Import from Indonesia and sufficient domestic production

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- Increase of demand by over 10%; shortage is expected
- Plywood Import from Indonesia and sufficient domestic

<Table 2-1> Demand and Supply of
 Major Construction Materials

		1988	Increase Rate (%)		(%)	1990	(%)
Cement ('000 tons)	Demand Supply Operation rate(%) Surplus/ Shortage	29,797 29,854 91.8		31,370 31,400 91.9	5.3 5.2	33,750 34,040 89.1	7.6 8.4
Steel- Bar '000 tons)	Demand Supply Operation rate(%) Surplus/ Shortage	3,625 3,622 90.0	7.0 6.0	4,005 4,089 98.7 84		4,325 4,347 97.7	8.0

Source : The Daily Construction News

<Table 2-1> Demand and Supply of
Major Construct

			teel- Bar '000 tons)

Source : The Daily Construction News

Demand for Building Materials per unit for Apartment Construction 2-2> <Table

				Apa	Apartment Construction	int Construction	ert uccion	
Items I	Demand/sq.mt.	Unit	Annual 1989	Annual Demand for 2 Million Housings 1989 1990 1991 1992			Annual Average	Annual
Reinforcing Bar	40 Kg	10000t	130	144	154	169	288	
Cement	460 Kg	10000t	1490	1656	1780	1945	2484	2777
Tile	0.61sg.m	33058sq:m	648	720	774	846	1440	1202
Sanitary Fixtures	0.06sq.m	'0000sets	65	72	77	80	87	1202
Glass	0.00018	'0000boxes	583	648	969	761		70
Sand	0.4 cb.m	box m	1206			10/	1296	1200
		III .	1290	1440	1548	1692	2880	1
Concrete	0.5 cb.m '0000cb.m	0000cb.m	1620	1800	1935	2115	3600	7564
Pile	0.035unit 1000	000	1134	1260	1354	1480	1890	1140
Cement Bricks	85bricks	1000 2,9	2,907,000	3,060,000	3,289,500	3.595.500		0.511
						00010010	000,000,	ı

Source : The Daily Construction News

			TSOS			
						Despand/ad at
	Concrete					Ttens anst

II.1. Exterior Structural Components

1. Granite

(1) Market Outlook

The demand for granite expanded rapidly owing to the economic growth which resulted in the construction and remolding boom for larger and better houses. Production has annually increased at an average 23.6 % from 23,780 M/T to 68,722 M/T during 1983 - 1988. This was mainly to cover the special demand for new constructions such as athletic facilities, other concerned buildings and hotels for the Seoul Olympic Games in 1988. (The production of granite in 1988 recorded a 40.6% increase, the highest increase rate since 1985)

closeing. It is estimated that more than half

<Table 2-3> Demand and Supply of Granite (1983 - 1988)

(Unit: '000 M/T , US\$ Million) Domestic Export Import Demand Production Q'ty Value Q'ty Value Q'ty Value 1983 23,780 184.0 207 61.0 155 11.6 23,728 134.6 1984 34,532 360.8 302 75.5 186 15.1 34,416 300.4 1985 44,191 326.3 243 71.0 373 27.3 44,321 282,6 1986 44,041 398.2 368 103.0 96 5.7 43,769 300.9 1987 48,873 504.6 448 149.5 92 7.6 48,517 362.7 1988 68,722 710.2 696 244.2 935 30.8 68,961 496.8

Source : The Korea Stone Press

The market size was estimated to be US\$ 496.8 million in 1988 , however it is expected to slightly decrease to US\$ 451.3 million in 1989. The demand for granite is supplied by the domestic market in most cases, and Japan receives more than 90% of Korea's granite export. Korea imports less than 10% of its domestic demand, depending on Italy (91%) for granite and marble.

II.1. Exterior Structural Components

1. Granite

(1) Market Outlook

The demand for granite expanded rapidly owing to the economic growth which resulted in the construction and remolding boom for larger and better houses. Production has annually increased at an average 21.6 % from 23.780 M/T to 58,722 M/T during 1983 - 1988. This was mainly to cover the special demand for new constructions such as athletic facilities, other concerned buildings and hotels for the Seoul Olympic Cames in 1988. (The production of granite in 1988 recorded a 40.6% increase, the highest increase rate since 1985)

<Table 2-3> Demand and Supply of Granite (1983 - 1988)

			,

Source : The Fores Stone Press

The market alse was estimated to be USS 196.8 million in 1988, however it is expected to slightly decrease to HSS 451.3 million in 1969. The demand for granite is supplied by the demestic market in most cases, and Japan receives more than 90% of Korea's granite expert. Korea imports less than 198 of its domestic demand, depending on Italy (91%) for granite and marble.

The imported granite is generally used for lobby decoration of buildings as well as for exterior / interior walls and flooring. It is estimated that more than half of the imported granite is available for constructing private builbings, 30% for public construction and remaining 10% for residential apartments.

In Korea's granite market, price is more important than quality. In order to be competitive in the market, it is recommended that Canadian suppliers export the kinds of granite "Imperial Red" since not enough is produced to cover domestic demand. Recently, the granite, so - called "New Imperial Red", has been imported from India to meet partial demand. Also, unprocessed granites with dimensions of more than 2m X 3m X 3m seem to have potential in the market as Korean suppliers can process the imported granite with Gang saw machines (130 units) which are spread throughout the country.

(2) Major Domestic Suppliers

There are 3,000 processors nation-wide, however only 21 processors possess Gang saw machines which can process larger unprocessed granites. The major suppliers are generally ranked by the number of Gang saw machines they possess.

- a. Il Shin Stone Co., Ltd.
 Tel: (02) 555 8300
 Tlx: K 33280
 Fax: (02) 554 0579
 No of Gang saw machines: 20
- b. Dongin Stone Industry Co., Ltd.
 Tel: (02) 562 0124
 Tlx: DISCO K 22557
 Fax: (02) 555 8060
 No of Gang saw machines: 16
- c. Dong Ah Marble Co., Ltd.
 Tel: (02) 566 3360/1
 Fax: (02) 552 0622
 No of Gang saw machines: 11
- d. Sae Jin Stone Co., Ltd.
 Tel: (02) 551 2121
 Fax: (02) 551 2123
 No of Gang saw machines: 6

The imported granite is generally used for lobby decoration of buildings as well as for exterior / interior walls and flooring. It is estimated that more than half of the imported granite is available for constructing private buildings, 30% for public construction and remaining 10% for residential apartments.

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 Tlx : K 33280
 Fax : (02) 554 0579
 No of Gang saw machines : 20
- Dongin Stone Industry Co., Itd.
 Tel: (02) 562 0124
 Tlx: DISCO K 22557
 Fax: (02) 555 8060
 No of Gang gaw machines: 16
 - C. Dong Ah Harbie Co., Ltd. Tel: (02) 566 - 3360/1 Fax : (02) 552 - 0622 No of Gang Saw machines : 11
 - 1. 580 Jin Stone Co., Ltd. Tel : (02) 551 - 2121 Fax : (02) 551 - 2123 No of dang saw aschines : 6

(3) Import Agencies

a. Supplier : Cremar (Italy)
Agent : Sejin Commercial Co., Ltd.

Tel: (02) 755-1881/2 Tlx : SJY 00 K24338

b. Supplier: Ind. De Roupase Exp Imp (Brazil)

Agent : Rio Enterprise Co. Tel: (02) 547-9726 Tlx: RIOCO K32125

c. Supplier: Finska Stenindustri AB (Finland)

Agent : U B Trade Co.

Tel: (02) 547-7841 Tlx : UBTRADE K25978 Fax: (02) 545-7422

d. Product : granite, marble blocks

Supplier : Saeilo (Italy)

: Il Shin Stone Co., Ltd. Agent

Tel: (02) 555-8300 Tlx: ILSTON K33280 Fax: (02) 554-0579

e. Product : granite stone Supplier: Sumihiro (Japan)
Agent: Il Sang Industrial Co., Ltd.

Tel: (02) 785-4541 Fax: (02) 785-5539

f. Product : marble, granite Supplier : Edilco (Italy)
Agent : Ha Rine Trading Co., Ltd.

Tel: (02) 540-7181 Tlx: K25860

(4) Specifications

Since the quality of granites are quite diversified depending on their origin, there are no unique specifications. However, most kinds of granite which Korean endusers prefer are within the range of some serial physical-mechanical tests that are conducted as follows: A Supplier : Cremar (Italy)
Agent : Sein Commercial Co., Ltd.
Tel : (02) 755-1881/2

Agent : Rio Enterprise Co.

Agent : Rio Enterprise Co.

Tel : (02) 547-9726

Tix : RIOCO X27.95

Agent : Elmska Stenindustri AB (Finland)
Agent : U.S Trade Co.
Tel : (02) Se7-78e1
Tlx : UBTRADE K25978
Pax : (02) Se8-2122

d. Product : granite, marble blocks
Supplier : Seeilo (Italy)
Agent : II Shin Econe Co., 7td.
Tel : (02) 555-5300
Tel : (02) 555-5300
Tel : (02) 555-6300

Supplier: Sumihiro (Japan)
Agent: 1 i Sang Industrial Co., Ltd.
Tel: (02) 785-4541
Eax: (02) 785-6549

Supplier : Edilco (Italy)
Agent : Ba Rine Trading Co., Ltd.
Tel : (02) 540-1181
TIN : K25860

(4) Specifications

Since the quality of granites are quite diversified depending on their origin, there are no unique specifications, However, most kinds of granite which Korean endwares prefer are within the range of some serial physical-medianical tests that are conducted as follows:

Physical - Mechanical Tests

- Compression Breaking Load: 1,500 2,000 Kg/cm2
 - Imbibition Coefficent : more or less than 0.3%

- Weight per Unit of Volume: 2.6 - 3.0

- Sound Velocity (P-Wave) : more or less than 4,000 m/sec

- Shore Scleroscope Hardness: 80 - 85 SH

(5) Tariff Schedule

<Table 2-4> Tariff Schedule for Granite Importation

1993
3%

Source : Tariff Schedules of Korea, 1989, Korea Customs Research Institute

2. Doors, Windows and Frames

(1) Market Outlook

The Korean demand for doors, windows and frames is expected to be U\$ 863 million in 1990 with continued soaring demand. Large housing projects have created special demands, however, imports will not increase because of the government policy to protect its own manufacturers.

The 3 major kinds of products manufacured in Korea are plastics, aluminium and wood. These domestic products generally satisfy the increasing demand, except for the minute proportion who demand luxurious or expensive imported products.

<Table 2-5> Market Size for Doors, Windows and their Frames (1987-1988)

Sings Saudi W/G	Quantity ('000m2)	1987 Value (\$mil.)	Market Share(%)	Quantity ('000m2)	1988 Value (\$mil.)	Market Share(%)
Plastic	2,358 9,200	74	17.8	3,187	100	18.6
Aluminium		238	57.4	9,250	301	56.1

Physical - Mechanical Tests

- Compression Breaking Load : 1,500 2,000 Kg/cm2
 - O.E 8.5 : emuloV to Jinu req JipieW -
- Shore Soleroscope Hardness : 80 88 SH

(5) Tariff Schedule

<Table 2-4> Tariff Schedule for Granite Importation

2. Doors, Windows and France

(1) Market Outlook

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The 3 major kinds of products manufacured in Morea are plastics, aluminium and wood. These domestic products generally satisfy the increasing demand, except for the minute proportion who demand luxurious or expensive imported products.

Table 2-5> Market Size for Doors, Windows and their Frames (1987-1969)

Wood Others Total	4,702 800 17,060	74 29 415	17.8	5,338 890 18,665	104 32 536	19.4
				10,005	220	

Source : The Daily Construction News

Plastic products have the brightest prospect on the grounds of their high-quality and consumers' preference for plastic over other materials. In 1990, the demand for plastic products is expected to reach US\$ 173 million. Lucky and Hanyang share the market with an approximate ratio of 85%: 15%, respectively. This item will soon overtake aluminium and should continue to increase well into the future. Also, wooden frames also seem to be increasing steadily indicating there should be no problem in meeting future demand.

			20,045	(Unit:US\$)
		988	-1,764,495	1989
	Export	Import	Export	Import
Plastic				
Japan U.K.	65,971	-	44,404	141_834
U.S.A.	31,640	-	428-136	2,717
W/G		11,781	-	26,645
Nethlds	-	14,763	120 720	7,171
Austral.	-	_	128,738 86,420	27 023
Phil.R	-	-	3,519	
Others	15,623	6,883	-	4,291
Total	113,234	33,427	263,081	40,824
Aluminium				2,081,017
Japan	364,424	795,066	623,402	251 060
Canada	679,144	inistricion	50,645	251,968 14,332
U.S.A.	6,086,267	241,480	6,020,619	154,773
Phil.R	1,522,173	-	313,389	
HongKong Singapore	3,415,018	TOSES OF SE	1,047,792	ames is -
Saudi-A	1,283,755	sind from US	194,747	import -
W/G	1,205,755	1 10 1989 81	117,440	-
France	_	_		48,661
Finland	921,076	-	185,056	87,031

Source : The Daily Construction News

Plastic products have the brightest prospect on the grounds of their high-quality and consumers' preference for plastic over other materials. In 1990, the demand for plastic products is expected to reach US\$ 173 million. Lucky and Hanyang share the market with an approximate ratio of 85%: 15% respectively. This item will soon overtake aluminium and should continue to increase well into the future, also, wooden frames also seem to be increasing steadily indicating there should be no problem in meeting future demand.

(Table 2-6> . Export and Import of Doors, Windows and Frames

Libya Austral.	5,820,737	argest stare	1,764,495	xport and
New Zlnd	Were - CO	122 601	and 41-69	74,313
Others	523,051	122,681 143,131	the incitacin	67,862
Total	20,615,645	1,302,358	1,127,280	6,068
	ad in 1989	1,302,336	11,800,350	705,008
Wood				
Japan	572,448	_	374,118	200 150
Canada	ore that 70	foounted by	3/4/110	290,158
U.S.A.	1,206,728	418,007	932,523	129,959
Phil.R.	387,608	11,823	77,279	684,946
HongKong	396,572	-	_	_
U.K. W/G	the impart r	market of wo	od frames ri	2,882
Austral.	mowang an	increase of	1844 Crom (86,022
Libya	264 404	mport market	for times r	1,652
Others	264,494	From the U.	S.A., 22t fr	Bo Japan
Total	188,780 3,016,630	39,960	342,753	139,566
		469,790	1,726,673	1,335,185
Total		Visit a land of the same and the		
Japan	1,002,843	795,066	1 041 024	
Canada	679,144	733,000	1,041,924	542,126
U.S.A.	7,292,995	671,268	6,953,142	144,291
Libya	6,085,231	-	1,764,495	866,364
Phil.R.	1,909,781	11,823	394,187	of camer
HongKong	3,811,590	utra su - une e	1,047,792	CLIVELY,
U.K.	framest Wes	Correto sas	-////52	5 500
W/G	ds with a s	init price ab	oue or - same	5,599 141,854
Nethlds	ton the u.s.	A. The demp	128,738	141,034
Austral.	as goods w	111 and like	86,420	75,965
Singapore	-	-	194,747	75,905
Saudi-A	-	-	117,440	
France	-	-	-	87,031
Finland	-	-	185,056	
New Zland Others	2 062 00=	acture-9	-	67,862
~	2,963,925	327,418	1,825,518	149,925
2	3,745,509	1,805,575	13,790,104	2,081,017
Source . Stati				

Source: Statistical Yearbook of Foreign Trade, 1988 & 1989 Korean Customs Administration

As seen above, the export of doors, windows and frames is declining, showing a decrease of 24% while the import market is steadily increasing from US\$ 1,806 thousand in 1988 to US\$ 2,081 thousand in 1989, an increase of 15.3%.

542.126 144,291 866.164 141,854 76,965			

Source : Statistical Yearbook of Foreign Trade: 1988 & 1989

As teen above, the expert of doors, windows and frames is declining, showing a decrease of 24% while the import market is steadily increasing from USS 1,806 thousand in 1988 to USF 2,081 thousand in 1988, an increase of 15,385

The U.S.A. holds the largest share in both the export and import markets of Korea, at 50.4% and 41.6% in 1989, respectively. However, considering the increasing trend, Canada could become a remarkable supplier for Korean end-users since Canadian products were newly introduced and imported in 1989 and hold 6.9% of the Korean import market.

In 1988, more than 70% (counted by value in US\$) of all imports were of aluminium frames. Approximately 61% came from Japan and 19% from the U.S.A.

In 1989, the import market of wood frames remarkably expanded, showing an increase of 184% from 1988, and holds 64.2% of total import market for these products. Approximately 51% came from the U.S.A., 22% from Japan and 10%from Canada. Due to the increasing export of wood frames, Canada became the third supplier to the Korean import market of doors, windows and frames.

As for plastic frames which are very promising items for those who want to export quality goods to Korea, even if the market share was only 2% in 1989, 65% came from the U.S.A. and 18% from West Germany, while 44% and 35% came from West Germany and the U.S.A. in 1989, respectively. However, in comparison with import quantity and the value of plastic frames, West Germany seems to export higher-quality goods with a unit price about 27 times higher than those from the U.S.A. The demand for higher quality, luxurious goods will most likely increase in the future.

(2) Major Domestic Manufacturers

a. Lucky - DC Silicone Co., Ltd. Tel: (02) 784-4432 Tlx: K25524 LUCKYDC Fax: (02) 784-6415

b. Hanyang Chemical Corporation
Tel: (02) 270-1114
Tlx: K 25540
Fax: (02) 270-2999 / 3000

c. Han Mi Co., Ltd.
Tel: (0552) 87-2438

The U.S.A. holds the largest share in both the export and import markets of Korea, at 50.4% and 41.6% in 1989, respectively. However, considering the increasing trend. Canada could become a remarkable supplier for Korean end-users since Canadian products were newly introduced and imported in 1989 and hold 6.9% of the Korean import market.

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(2) Major Comestic Manufacturers

Lucky - DC Silicone Co., Ltd. Tel : (02) 784-4432 Tix : K25524 LUCKYDC Fax : (02) 784-6415

b. Hanyang Chemical Corporation Tel: (02) 270-1114 Tlx : K 25519 Fax : (02) 270-6999 / 3000

> C. Han ME Co., LEd. Tel: (0552) 87-2438

d. Hyundai Wood Industries Co., Ltd.

Tel: (02) 540-3211

Tlx : LIVARTS

Fax: (02) 540-3325

e. Samik Furniture

Tel: (02) 745-0122 Tlx : SAMFUR K22260 Fax: (032) 864-9141

(3) Import Agencies

a. Product : flush door, solid door, door frames

Supplier: Hanshin Trading (HK)

Product : windows and door , apartment furnitures

Supplier : Jinsun Ent. (Malaysia) Agent : Duck Soo lumber Co., Ltd.
Tel : (032) 73-7511

Tlx: DUCKSOO K29643

b. Product : aluminium door, automatic door

Supplier : National (Japan) Product : Revolving door

Supplier: Nippon aluminium (Japan)

Product : Aluminium door Supplier : Matsushita (Japan) Agent : Cheol Kun Co., Ltd. Tel: (02) 273-1227/8 Tlx : CKSTAR K22897

Fax: (02) 273-5568

c. Product : door, tile, plywood

Supplier: P & H Trading Co. (USA)
Agent: P & H Trading Co.

Tel: (02) 540-7146 Tlx: K22546

Fax: (02) 544-2996

d. Product : wood fire door Supplier : EMA overses (USA) Agent : Youman Ind. Co., Ltd.

Tel: (02) 738-4371 Tlx: YOUMAN K26605 Fax: (02) 738-2145

d. Hyundai Wood Industries Co., Ltd. Tel: (02) 540-3211 Tlx: LIVARTS Fax: (02) 540-3325

> 2. Samik Furniture Tel : (02) 745-0122 Tlx : SAMNUR K22260 Fax : (032) 864-9141

(3) Import Agencies

Supplier : flush door, solid door, door frames

Product : Windows and door , apartment furnitures

Supplier : dinsum Ent. (Malaysia)

Agent : Duck Soo lumber Co., Ltd.

Tel : (032) 73-7511

Tix : DUCKSOO K29647

Product : sluminium door, sutomatic doos Supplier : Wational (Japan)
Product : Pavolving door Supplier : Wippon aluminium (Japan)
Product : Aluminium door Droduct : Matsushita (Japan)
Agent : Cheol Kun Co., Ltd.
Agent : Cheol Kun Co., Ltd.
Tix : CKSTAR K22897

Product : door, tile, plywood Supplier: P & H Trading Co. (USA) Aquit : P & H Trading Co. (USA) Tel: (02) 540-7146
Tix: K22546
Fax: (02) 544-298

Supplier: EMA overses (USA)
Supplier: EMA overses (USA)
Agent: Youman Ind. Co., Ltd.
Tel: (02) 738-4371
That: YOUMAN M26605
Fax: (02) 738-2145

e. Supplier : Karl Danzer (W/G)

Agent : Woo Rim Corp.

Tel: (02) 752-0977/8
Fax: (02) 756-4954

f. Product : panel board and fire door

Supplier: Asberit (Brazil)
Agent: Jin Woo Trading Co. Tel: (02) 841-0294 Tlx: TSAMC K33304

Fax: (02) 754-3330

(4) KS (Korea Industrial Standard) Specifications

a. Wooden doors and frame

<Qualifications>

Following defects should be slight : knots, decays, splits, ring galls, worm halls, resin, connecting cracks, roughness

Hydrating rate : less than 15%

Adhesive power : over 3.5 kg/sq.cm. in boiling experiment or hot-cold submersion experiment.

<Dimensions and allowances>

Co	ode	Width	Height	Thick	ness	Code	Width	Height	Thickness
70	0180 0180 0180 0180	590 690 790 990	1790	OVER	30	60210 70210 80210 100210	590 690 790 990	2090	OVER 30
150 180 200	180 180 180 180	1190 1490 1790 1990 2090	1790	OVER		120210 150210 180210 200210 210210	1190 1490 1790 1990 2090	2090	OVER 36
240 270 300 330 360	180 180 180	2390 2390 2990 3290 3590	1790	OVER		240210 270210 300210 330210 360210	2390 2690 2990 3290 3590	2090	OVER 40
				CONTRACTOR OF THE PERSON					

e. Supplier : Karl Danser (W/G)
Agent : Wed Rim Corp.
Tel : (02) 752-0977/8
FRX : (02) 756-4954

Eupplier : panel board and fire door Supplier : Asberit (Erazil)
Agent : Jin Weo Trading Co.
Tel: (82) 241-0294
Tix: TSAMC K13304
Fax: (82) 756-2330

(4) KS (Norea Industrial Standard) Specifications

a. Wooden doors and frame

Hydrating rate: less than 15% Adhesive power: over 3.5 kg/sq.om. in boiling experiment or hot cold submarsion experiment.

opimensions and allowances

			240180 270180 300180 330180

60200 70200 80200 90200 100200	590 690 790 890 990	1990	OVER	30	60240 70240 80240 90240 100240	590 690 790 890 990	2390	OVER	30
120200 150200 180200 200200 210200	1190 1490 1790 1990 2090	1990	OVER	36	120240 150240 180240 200240 210240	1190 1490 1790 1990 2090	2390	OVER	36
300200 330200	2390 2690 2990 3290 3590	1990	OVER	40	240240 270240 300240 330240 360240	2390 2690 2990 3290 3590	2390	OVER	40

b. Wooden sliding windows and frames

<Qualifications>

Knots, scratchs, derailments, ring galls:

front, sides : Nothing

rear: Nothing inconvenient for usage

Decay:

front : nothing rear : slight

Wane :

front : Nothing

rear : less than 10%

Split:

olit :
front : extremely slight rear : nothing noticeable

Bending : slight

Twist: extremely slight

Worm holes:

front : nothing

rear : less than 4 per 1m. less than 2mm. each

b. wooden sliding windows and frames

Decay :
front : nothing
rear : slight

Front : Wothing
rear : less then los

Split:
front: extremely slight
rear: nothing noticeable

Bending : mlight Twist : extremely elight

front : nothing rear : less than 4 per im. Heart wood : Nothing

Color change: Nothing noticeable
Hydrating rate: less than 15%

(5) Tariff Schedule

Table 2-d>	1990	1991	1992	1993
Wood	13%	11%	9%	8%
Aluminium	13%	11%	9%	8%
Plastic	13%	11%	9%	8%

Source: Tariff Schedules of Korea, 1989
Korea Customs Research Institute

3. Fiber Glass

(1) Market outlook

The market is increasing 20% every year due to changing consumer tastes and preferences for more luxurious goods. All these trends have continued propelled competitive development of new materials among domestic manufacturers within the construction market. In addition, as the Korean standard of living rises, the high-quality market of interior fittings will also increase steadily.

Recently, fiber glass for ceiling materials seems to be one of the hottest construction materials on the market thanks to the increasing demand for high quality products. The market is forecasted to be US\$ 43.12 - US\$ 50.32 million in 1990 with a quantity of approximately 25,000 tons.

Since the demand for fiber glass is supplied from the local market, the import market is relatively very small. Thus, imports declined from US\$ 950 thousand in 1988 to US\$ 722 thousand in 1989, a decrease of 23.9%. In general, Japan holds approximately 90% of the Korean import of fiber glass.

Heart wood : Nothing Color change : Nothing noticeable Hydrating rate : less than 15%

(5) Tariff Schedule

<Table 2-7> Tariff Schedule for the Importation of Duors, Windows and their Frames

Source : Tarili Schedules of Korea, 1989 Korea Customs Research Institute

3. Fiber Glass

(1) Market outlook

The market is increasing 10% every year due to changing consumer tastes and preferences for more luxurious goods. All these trends have continued prepailed competitive development of new materials among domestic manufacturers within the construction market, in addition, as the Korean standard of living rises the high-quality market of interior fittings will also increase steadily.

Recently, Tiper glass for defiling materials seems to be one of the hortest donstruction materials on the market thanks to the increasing demand for high quality products. The market is forecasted to be US\$ 43.12 - US\$ 50.32 million in 1990 with a quantity of approximately 25,000 tons.

Since the demand for fiber glass is supplied from the local market, the import market is relatively very small. Thus, imports declined from USS 950 thousand in 1988 to USS 722 thousand in 1989, a decrease of 21.9t. In quasi-al, Japan holds approximately 90% of the Korean import of ther glass.

On the contrary, the export of fiber glass which showed an increase of 30.2% during the last two years continued to grow by US\$4,828 thousand in 1989. Most of them are exported to R. China (44.6%) and HongKong (31.9%).

Canada made the first entry into the Korean import market of fiber glass with a market share of 0.2% in 1989, partly as a result of Korea's policy to reduce heavy dependence of import sources on Japan and the U.S.A.

<Table 2-8> Export and Import of Fiber Glass

(Unit : US\$)

	19	88	198	39
	Export	Import	Export	Import
Japan Canada	58,523	842,791	33,372	654,539
R.China Hongkong	1,190,281 1,330,540	(02) _082+333 (02) _083+544	2,152,952	-
Singapore Indonesia	217,358	_	1,541,955 262,340	-
U.S.A.	366,988 28,450	83,657	403,941	36,415
Pakistan India	_ Tell s	(02) 554-020	109,270 103,459	-
Others Total	516,938 3,709,078	23,219 949,667	221,824 4,828,113	30,223 722,371

Source: Statistical Yearbook of Foreign Trade, 1988 & 1989, Korean Customs Administration

(2) Major Domestic Manufacturers

a. Byucksan Corporation Tel: (02) 273-9211 Tlx: BYUCKSAN K22813 Fax: (02) 275-0050

b. Keumkang Ltd.

Tel: (02) 543-2101 Tlx: KOCHEM K26356 Fax: (02) 543-8214 On the contrary, the export of fiber glass which showed an increase of 30.2% during the last two years continued to grow by US\$4,828 thousand in 1989. Most of them are exported to R. China (44.6%) and HongKong (31.9%).

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(Unit : USS)

	842,791	

Source : Statistical Yearbook of Moraign Trade, 1988 & 1989, Korean Customs Administration

(2) Major Domestic Manufacturers

Tyucksan Corporation Tal: (G2) 273-9211 TIX: BYUCKSAN K22813 FRX: (G2) 275-0050

Tel: (02) 543-2101 Pix : ROCHEM R26356 Pax : (02) 543-8214

(3) Import Agencies

a. Product : ceramic fiber refractory products

Supplier : Uanville Export (USA)

Agent : Fimer corp.

Tel: (02) 777-7741 Tlx: FIMER K28477 Fax: (02) 756-3896

b. Product : insulation boards

Supplier : Cape Bd. Products (France)

: Cheol Kun Co., Ltd. Agent

Tel: (02) 273-1227/8 Tlx: CKSTAR K22897 Fax: (02) 273-5568

c. Product : fiber glass products, ceramic fiber products,

carbon and special fiber products

Supplier: Mid-mountain material (USA)

Agent : Lee's Corporation

Tel: (02) 982-3217 Fax: (02) 983-5403

d. Product : refractory materials

Supplier: Morganite ceramic fiber (Australia)

Agent

: KIC Int'l Ltd. Tel: (02) 554-0285 Tlx: KICSEL K26703 Fax: (02) 556-1623

e. Supplier : Abeko Trading (Japan)

Agent : Kyungwha Trading Co., Ltd.

Tel: (02) 784-8211/6 Tlx: TYLCO K24324 Fax: (02) 784-7547

f. Supplier : Lab. Chrysotile (Canada)

Agent : Bookuk Co & Ltd.

Tel: (02) 739-4611/5 Tlx: TRUSTKM K28493 Fax: (02) 739-2288

g. Supplier : Central Asbestos (So. Africa)

Agent : Hantak Trading Corp.

Tel: (02) 548-9874/6 Tlx: HANTAK K24689

(3) Import Agencies

a. Product : ceramic fiber refractory products
 Supplier : Uanville Export (USA)
 Agent : Fimer cours

Tel : (02) 777-7741 Tlx : FIMER M28477 Fax : (02) 356-2804

b. Product : insulation boards
Supplier : Cape Bd. Products (Prance)
Agent : Cheol Kun Co., Ltd.
Tel : (02) 273-1227/8
Tix : CKSTAR K22897
Fax : (02) 273-5569

c. Product : fiber glass products, deramic fiber products, carbon and special fiber products
Supplier : Mid-mountain material (USA)
Agent : Lee's Corporation
Tel : (02) 982-3212
Fax : (02) 983-8463

d. Product : refractory materials
Supplier : Morganite ceramic fiber (Australia)
Agent : KIC Int'l Ltd.
Tel : (02) 554-0285
TIX : KICSEL K26703

Agent : Abeko Trading (Japan)
Agent : Ngungwha Trading Co., ted.
Tel : (02) 784-8211/6
Tlx : TYLCO KZ4324
Fax : (02) 784-7547

Supplier: Lab. Chrysotile (Canada)
Agent: Sockuk Co & Ltd.
Tel: (02) 739-4611/5
TIX: TRUSTKM K28493
Fax: (02) 739-2288

g. Supplier : Central Asbestos (So. Africa)
Agent : Hantak Trading Corp.
Tel : (02) 548-9874/6
TIX : HANTAK K24689

h. Supplier : JM Asbestos Inc. (Canada)

Establishment pan asbestos Inc. (Zimbabwe)

Safimpex Co. (So. Africa)

Agent : Byucksan Corp.

Tel: (02) 273-9211/9 Tlx: PENGUIN K27452 Fax: (02) 275-0050

i. Supplier : JM Asbestos (Canada)

Agent : Fimer corp.

Tel: (02) 777-7741 Tlx: FIMER K28477 Fax: (02) 756-3896

j. Supplier : Behag Asbestos (So. Africa)

: Shinil Ind. Co., Ltd. Tel: (02) 544-7812/4 Tlx : SHINOK K28591 Fax: (02) 542-0556

Tel: (02) 253-5271/2 Tlx: HANSAM K24403 Fax: (02) 752-1809

(4) KS (Korea Industrial Standard) Specifications

a. Fiber Glass

<Qualifications>

thermal conductivity density when subject to experiment (Kcal/m*h*c) (kg/cube m.) ave.temp.70+-5 c 0 c less than 0.036 less than 0.027 less than 0.042 less than 0.032 #2 40 #3

b. Glass fiber board

<Qualifications>

Density (Kg/cube.m a	Thermal (Kcal/	m*h*c)	Glass Fiber Used
BOARD #2 16K 16+-2 20K 20+-2 24K 24+-2 32K 32+-4 40K 40+-4 48K 48+-4 64K 64+-6 80K 80+-7 96K 96+-9 120K 120+-12	below 0.050 0.045 0.042 0.040 0.038 0.037 0.036 0.036 0.036	below 0.033 0.030 0.029 0.028 0.027 0.026 0.026 0.026 0.026	#2
BOARD #3 80K 80+-7 96K 96+-9 120K 120+-12	0.040	0.030	#3

(5) Tariff Schedule

<Table 2-9> Tariff Schedule for the Importation of Fiber Glass

1990	1991	1992	1993	
13%	11%	9%	8%	

Source: Tariff Schedules of Korea, 1989, Korea Customs Research Institute

b. Glass fiber board

cations>

(5) Tariff Schedule

<Table 2-9> Tariff Schedule for the Importation of Fiber Glass

Source : Tariff Schedules of Korea, 1989. Korea Customs Research Institute

4. Roofing Materials - Asphalt Shingles, Cedar

(1) Market Outlook

Most of the asphalt shingles and cedar roofing materials are imports as there is a small domestic production. Other than asphalt and cedar materials which already have markets, new materials which could fit the weather conditions of Korea, if available, would be profitable to introduce. However, those who wish to export new materials to Korea should keep in mind that in the beginning they would have to execute the projects from start to finish. Also, the materials would have to be suitable to oriental taste.

The market for asphalt shingles since the first imports in 1984 have grown to US\$ 14.5 million annually. In 1990, the increase in the construction of luxurious houses is expected to expand in the market by about 50%. This sudden expansion has led to severe competition, resulting in irrational dumping prices. Actually, the price has fallen about 40% since imports began.

Cedar is mostly imported from Canada and the U.S.A., and is used not only for roofing but also for wall carpetings for exterior/interior use. The demand has jumped since 1989 to US\$ 4.3 million - 5.8 million in 1990, mainly due to changes in consumer preference. Further diversification of cedar products may increase profits even more.

There is no ordered price structure or established distribution channel for roofing materials. The majority are small business firms who import, sell and do the construction themselves. The price is inclusive of the execution expenses.

The Korean roofing material market in general is depending on imported products. Imports of 1989 surprisingily increased from that of 1988 by more than 300%.

The import market seems to increase as the demand for diverse high-quality exterior materials soars. Recently, various types of shingle roofing materials have been a fad serving the taste of the upper class who own individual houses and also shingles can be used when remodeling houses. Cedar shingle imports were 63.4% of roofing material imports in 1989 while asphalt shingle imports were 83.7% in 1988. Wood shingles and shakes began to be imported from 1989.

- Roofing Materials - Asphalt Shingles, Cedar

(1) Market Outlook

Most of the asphalt shingles and ceder roofing materials are imports as there is a small domestic production other than asphalt and ceder materials which already have markets, new materials which could fit the weather conditions of Koras, if available, would be profitable to introduce. However, those who wish to export new materials to Korea should keep in mind that in the beginning they would have to execute the projects from start to finish. Also, the materials would have to be suitable to oriental taste.

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More than 50% of cedar shingle imports came from Canada which is also the main import source for the U.S.A. in regards to asphalt shingle, and wood shingle & shake. Canada is a #1 import source in total, which means imports from Canada amounted to US\$ 5.7 million out of total import US\$ 13.1 million.

<Table 2-10> Export and Import of Roofing Materials

				(Unit: US\$)
	Evnow	1988		1989
	Export	Import	Export	Import
Cedar Shingl	es			
Japan	-	140,810	464,008	0.5.0
Canada	Cost :-	377,336	404,000	26,247
U.S.A.	-	72,346	_	5,262,112
Total	Kangnat-	590,492	464,008	2,989,318 8,277,677
Asphalt Shine	qles			
Japan	PAR	1,117,550		
Canada	-	120,345		169,855
U.S.A.	Kolon -	1,010,755		379,320
Italy	Tell : -			2,343,042
Norway	Tix : - ::	_	_	353,846
Spain	Fax : -	-	_	528,726
W/G	-	349,143		421,429
Kuwait	Morea - was	_	50,464	317,218
Others	9,500	607,181	12,528	144,208
Total	9,500	3,204,974	62,992	4,657,644
Roofing Tiles	(Ceramic)			
Japan	ing ri-u	3,878	164,601	2 200
R.China	-	16,884	-	3,323
Phil.R	Isha C-rash	_	8,657	
Thailand	Del :	-	81,979	
Guam	-	-	46,034	
Italy	Sinter-	-	-	52,882
Australia	-	13,884	-	-
Total	ax -	34,349	310,641	56,205
Wood Shingles	& Shakes			
Japan	21,568	_	-	
Canada	- ·	-	-	25,427
U.S.A.	-	_		49,480
Total	21,568	-	-	74,907

which is also the main import source for the U.S.A. in regards to asphalt shingle, and wood shingle & shake. Caneda is a #1 import source in total, which means imports from Caneda amounted to US\$ 5.7 million out of total import US\$ 13.1 million out of

<Table 2-10> Export and Import of Roofing Naterials

	1	

Total		mbos Corcersti		
Japan	21,568	1,262,238	628,609	199,425
Canada	TAX - LBCS	497,681	-	5,666,859
U.S.A.	*** - (02)	1,083,101	-	5,381,840
Italy	-	-	-	406,728
Norway	DONG-LIE I	nd. Co- Lad.	-	528,726
Spain W/G	191 - (92)	19959-11	-	421,429
Others	0.500	349,143	-	317,218
Grand Total	9,500	637,562	209,032	144,208
	31,068	3,829,815	837,641	13,066,433

Source: Statistical Yearbook of Foreign Trade, 1988 & 1989, Korean Customs Administration

(2) Major Domestic Manufacturers

- Roof Coatings for Waterproofing
 - a. Kangnam Chemical Co., Ltd.

Tel: (02) 562-4156

Tlx: K27520

Fax: (02) 555-7680

b. Kolon Petrochemical Co., Ltd.

Tel: (02) 757-8661 Tlx: KOLON K23225 Fax: (02) 757-4750

c. Korea Chemical Co., Ltd.

Tel: (02) 543-1141 Tlx: KOCHEM K26356 Fax: (02) 543-8214

- Roofing Tiles

- a. Iwha Ceramics Co., Ltd. Tel: (02) 555-1941
- b. Sintanjin Roofing Tiles Co., Ltd.
 Tel: (02) 585-6091
 Fax: (02) 585-6092

rounied materials

- Asphalt & Cedar Shingles

a. Sebong Co., Ltd. Tel: (02) 540-5866 Fax: (02) 549-8192

	21,668	

Source : Statistical Yearbook of Poreign Trade, 1988 & 1989, Korean Customs Administration

(2) Major Domestic Manufacturers

Roof Coatings for Waterproofing

a. Kangnam Chemidel Co., ikd. Tel: (02) 562-4156 Tlx: K27520 Fax: (02) 555-7680

b. Kelon Petrochemical Co., Ita Tel: (02) 787-8661 Tlx: KOLON K23228 Fax: (02) 757-4750

C. Korea Chemical Co., Ltd.
Tel : (02) 543-1141
Tix : KOCHEM K26356
Fax : (02) 543-8214

- Roofing Tiles

d. Twha Ceramics Co., Ltd. Tel: (02) 555-1941

o. Sintanjin Roofing Tiles Co., Ltd. Tel: (02) 565-6091 Yak: (02) 685-6092

Asphalt & Cedar Shingles

* Sebong Co., Ltd. Tel: (02) 549-5866 Fax: (02) 549-6192 b. Eastern-Bamboo Corporation

Tel: (02) 699-2222 Tlx: EBCSEL K24209 Fax: (02) 696-7344

c. Dong Lim Ind. Co., Ltd.
Tel : (02) 293-3211
Tlx : K23352 DONG LIM

- Caulking and Sealing Compounds for Building
 - a. Korea Chemical Co., Ltd. Tel: (02) 543-1141

Tlx: KOCHEM K26356 Fax: (02) 543-8214

b. Kang Nam Chemical Co., Ltd.

Tel: (02) 562-4156

Tlx: K27520 Fax: (02) 555-7680

c. Lucky-DC Silicone Co., Ltd.
Tel: (02) 784-4432

Tlx: LUCKYDC K25524 Fax: (02) 784-6415

- d. Hanmi Chemical Co. Tel: (02) 807-1285
- c. Dawning Corporation
 Tel: (02) 782-1836

(3) Import Agencies

a. Product : red cedar roofing materials

Supplier: West Mount (Canada)
Product: color asphalt shingles

Supplier: Owens - Corning Fiberglass (U.S.A.)

Agent : Sebong Co., Ltd.
Tel: (02) 540-5866
Fax: (02) 549-8192

b. Product : asphalt shinglesSupplier : Tegola (Italy)

Agent : Cheol Kun Co., Ltd. Tel : (02) 273-1227/8

Tlx : CKSTAR K22897 Fax : (02) 273-5568 Tal : (02) 699-2222 .
Tix : EBCSEL K24209
Fax : (02) 696-7344

Dong Lim Ind. Co., Ltd. Tel: (82).293-3311 Tlx: K23352 DOWG LIM

Caulking and sealing compounds for Building

Tel: (02) 543-1141
T1x: KOCHEM K25356
Fax: (02) 543-8214

0. Kang Nam Chemical co., Ltd. Tel: (02) 562-4186 Tlx: K27520 Fax: (02) 558-7680

Tel: (02) 788-4432 Tix: LUCKYDO K25524 Tax: LUCKYDO K25524 Tax: (02) 784-6415

> d. Hanmi Chemical Co. Tel: (02) 867-1269

Dawning Corporation Tel: (02) 782-1816

(1) Import Agencies

a. Product : red cedar roofing materials
Supplier : West Mount (Canada)
Product : color asphalt shingles
Supplier : Owens - Corming Fiberglass (U.S.A.)
Agent : Sebong Co., Ltd.
Tel : (02) 540-5866
Fax : (02) 549-8892

Product : asphalt shingles Supplier : Tegola (Icaly)
Agent : Cheol Kun Co., Ltd.
Tel : (02) 273-1227/8
Tix : CKSTAR K22897
Fax : (02) 273-5558

c. Product : poly coat roof system

Supplier : Southwestern Petroleum (USA)

Agent : Shin Sung Int'l
Tel : (02) 718-7

Tel: (02) 718-2990 Tlx: MOCNOM K23231 Fax: (02) 757-0115

d. Product : Alaska red cedar

Product

Supplier : Riverside Lumber (USA)
Agent : Taeyoon Inc.

Tel: (02) 547-8321 Tlx: K29698 TY Fax: (02) 545-7425

e. Product : western red cedar

Supplier : Nari (USA)

Agent : Ok-San Ind. Co., Ltd. Tel: (02) 333-9911/6

Tlx: OKSAN K22158

f. Product : asphalt shingle roof tiles

Supplier : Link (USA)

Agent : Dong-a Trading Co.

Tel: (02) 555-1083 Tlx : EASTCO K23913 Fax: (02) 552-6630

g. Product : internal floating roof

Supplier : Conservatec (USA)

Product : roofing

Supplier: H.H.Robertson (USA)

Agent : Joo Chang Ind. Co., Ltd.

Tel: (02) 274-2051/2 Tlx: JOOCHCO K25885

h. Product : asphalt roofing tiles Supplier : Certainteed (USA)

Agent : Telesis Korea Inc. Tel: (02) 753-2472/5 Tlx : TLSIS K26492 Fax: (02) 755-8996

i. Product : asphalt shingle roof tiles
Supplier : J.B. Mercantile (USA)
Agent : Seo Jin Trade Inc.
Tel : (02) 544-4751

Fax: (02) 546-0976

d. Product : poly coat roof system
Supplier : Southwestern Petroleum (USA)
Agent : Shin Sung Int'1
Tel : (02) 718-2990
Tlx : MOCNOM X23231

Supplier: Alaska red cedar
Supplier: Riverside Lumber (USA)
Agent: Taeyoon Inc.
Tel: (02) 547-8321
Tix: K29698 TY

Supplier: Western red oeder Supplier: Nari (USA)
Agent: Ok-San Ind. Co., Ltd.
Tel: (02) 333-9911/6
TIX: OKSAN K22158

Supplier: Link (USA)

Agent : Dong-a Trading Co.

Tel: (02) 555-1083

Tlx: EASTCO K23913

Fax: (02) 552-6610

g. Product s internal floating roof
Supplier: Conservated (USA)
Product: roofing
Supplier: H.H.Robertson (USA)
Agent: Joo Chang Ind. Co., Ltd
Tel: (02) 274-2051/2

h. Product : asphalt roofing tiles
Supplier: : Certainteed (USA)
Agent : Telesis Korea Inc.
Tel : (02) 753-2472/5
TIX : TIXIS K26492
PAX : (02) 755-8996

Eupplier: J.B. Mercantile (USA)

Agent: 5 800 Jin Trade Inc.

Tel: (62) 544-4751

Fax: (62) 545-6751

j. Product : Aluminium coating roof Supplier : Swepco (USA)

Agent : Mikeon Int'l Corp. Tel: (02) 544-4751 Fax: (02) 546-0976

k. Product : water proofing
 Supplier : XYPEX Chemical Corp.
 Agent : Sanglin XYPEX

Tel: (02) 547-5201 Fax: (02) 549-1477

(4) KS (Korea Industrial Standard) Specifications

a. Clay roof tiles

<Qualifications>

* Korean Style Roofing Tiles

bending-destruction load (kg*f)		hydrating(%)
small medium large	over 200 over 200	within 12 within 12
	over 200	within 12

* OGUM style / S style tiles

£. Svn	grade 1 bending-destruction (kg*f)	hydrating (%)	grade 2 b-d load hydrating
OGUM	over 200	within 12	TO WILLIAM
S	over 200	within 12	

Sealing compounds for sealing and glazing in buildings

<Qualifications>

- No noticeable color difference between sample and product - No erosion on the surface
- No harm on humans and livestock

j. Product : Aluminium coating roos Supplier : Swepco (USA)

Agent : Mikeon Int'i Corp

Pel: (02) 544-4751 Pax: (02) 546-0976

K. Product : water proofing Supplier : XYPEX Chemical Corp. Agent : Sanglin XYPEX

Tel: (02) 547-5201 Pax: (02) 549-1477

(4) KS (Kores Industrial Standard) Specifications

a. Clay roof tiles

<Qualifications>

* Korean Style Roofing Tiles

* OGUM style / 8 style tiles

b. Sealing compounds for sealing and glazing in buildings

product product

. No harm on humans and livestock

c. Oil based caulking compounds for buildings

<Qualifications>

Shrink rate : less than 7%

Holding rate: permeation width: less than 5 mm.

No. of permeable sheets: less than 3

slump : less than 3 mm.
adhesiveness : good

cementation rate : less than 30%

alkali-proof : good

d. Calcium silicate terminal insulating material

<Qualifications>

	condu	ensity activity i /sq.cm) (kc	ntensity	curb constriction (kgf/sq.cm)	linear n (%)
thermos b	ooard#1 ube #1	less than 0.22	less than 0.053	over 3.0	less than 2.0
thermos b	oard#2 ube #2	less than 0.28	less than 0.058	over 3.0	less than 2.0

e. Sealed insulating glasses <Qualifications>

- dewing point : below -35'c

f. Synthetic polymeric roofing sheets

<Qualifications>

- dimensions

	thickness(mm)	length(m)	width(m)
vulcanized rubber	0.8 1.0 1.2 1.5 2.0	20 10 15	1.2
non-vulcanized rubber	1.5 2.0 2.5	10	1.0
chloridized vinyl resin	1.0 1.5 2.0 2.	5 10 20 25	1.0 1.2 1.8
ethilen resin	1.0 1.2 1.5 2.0	20 10 15	1.0 1.2 1.0 1.2

⁻ shape: basically, a perfect square or a rectangle
The width of the air-layer should be over 4
mm.

c. oil based caulking compounds for buildings

Shrink rate : less than

Holding rate : permeation width : less than 5 mm.

slump : less than 3 mm. adhesiveness : good cementation rate : less than

d. Caldium silicate terminal insulating material

<Qualifications>

e. Sealed insulating glasses

- dewing point : below -35'c

- shape : basically, a perfect square or a rectangle The width of the air-layer should be over

f. Synthetic polymerie roofing sheets

<Qualifications - dimensions</pre>

(5) Tariff Schedule

	1990	1991	1992	1993
Roofing Tiles Asphalt Shingles Cedar Shingles Wood Shingles	13%	11%	9%	8%
	13%	11%	9%	8%
	10%	9%	7%	5%
	13%	11%	9%	8%

Source: Tariff Schedules of Korea, 1989 Korea Customs Research Institute

(5) Tariff Schedule

		.4	
	118		

Source: Tarilf Schedules of Korea, 1989
Korea Customs Research Institute

II.2. Building Engineering and Equipment

1. Heating Equipment

(1) Market Outlook

15,000 - 30,000 Kcal/h of electric capacity house-hold boilers are prevalent in the market. In spite of stabilized oil prices, there is a growing demand for LNG(liquidized natural gas) boilers, however in the long run, gas boilers should dominate the market.

Item	Quantity ('000)	Value (US\$ Million)
Oil Boiler	600	359.4
Gas Boiler	250	143.8
Total	850	503.2

Source : Construction Association of Korea

56% of Korea's boilers were exported to the U.S. in 1988. Concerning radiators and air heaters, 75% of the products were imported from the U.S. and 25% from Japan during the same period.

Recently, instead of foreign products, Korean made gas boilers are prevailing in the market.

The import market which accounted for US\$ 29,483 thousand in 1989 showed a rapid increase of 78% in comparison with that of 1988. The products like gas boilers, electric radiators, heaters and air heaters seem to have large potential in the market for the long run. However, the demand for these kinds of products are sufficiently supplied from the domestic market and the import is not likely to be largely extended.

The solar collectors and parts which are regarded in general as a special heating system are fully dependent upon the import market ,but the demand is very restricted due to the weather conditions.

II.2. Building Engineering and Equipment

1. Heating Equipment

(1) Market Outlook

15,000 - 30,000 Keal/h of electric capacity house-hold bollers are prevalent in the market. In spite of stabilized oil prices, there is a growing demand for LNU(liquidized natural gas) bollers, however in the long run, gas bollers should dominate the market

<Table 2-12> Estimated Demand for
Heating Equipment for 1990

Source : Construction Association of Kores

Set of Adrea's pollers were exported to the U.S. in 1988. Concerning radiators and air heaters, 75% of the products were imported from the U.S. and 25% from Japan during the same period.

Recently, instead of foreign products, Korean made gas boilers are prevailing in the market:

The import market which secounted for US\$ 29,483 thousand in 1989 showed a rapid increase of 78% in comparison with that of 1988. The products like 98% boilers, electric radiators, heaters and air heaters meem to have large potential in the market for the long run. However, the demand for these kinds of products are suitablently demand from the domestic market and the import is not likely to be largely extended.

The solar collectors and parts which are regarded in dependent as a special heating system are fully dependent upon the import market , but the demand is very restricted due to the weather conditions.

Canada exported US\$ 66 thousand in 1989, an increase of 55.9% compared with the previous year, and had the market share of below 0.5% at maximum.

<Table 2-13> Export and Import of Heating Equipment

Total	-1-220-425			(Unit : US\$)
	-toral na	1988		1989
	Export	Import	Export	Import
Oil Boilers				
Japan	7,514	8,622	5,664	113,070
U.S.A.	5,584	623,064		421,519
Sweden	-	456,969	-	_
Libya	40,041	-	22,209	-
Swiss	-	-	-	75,166
Indonesia		-	34,964	<u> </u>
Others	13,839	49,861	31,132	2,374
Total	66,839	1,138,516	93,969	612,129
Gas Boilers				
Japan	_	2,954	2,397	
U.S.A.	2,560	15,854	2,391	3,277
France	_	560,732		332,329
Italy	1,018	283,458		1,071,131
W/G	lators_1 Tel	178,452	_	384,801
Nethlds	1,060-788	_		2,725,975
Others	18-888	3,629	_	149,508
Total	3,578	1,045,079	2,397	25,630 4,692,651
R.China			-/05/	4,092,031
Others & Par	ts			
Japan	27,746	539,560	64,173	1,326,440
U.S.A.	1,958,726	249,992	376,890	267,841
France	-	2,638,757		8,602,039
Italy	-	328,421	2,060	859,278
Nethlds	-	161,916	-	407,679
Denmark		-	-	2,044,863
W/G	-	-	-	556,733
U.A.E.	1,237,403	-	-	-
Others	249,397	124,214	57,807	23,588
Total	3,473,272	4,042,860	500,930	14,088,461

Canada exported US\$ 65 thousand in 1989, an increase of 55.9% compared with the previous year, and had the market share of below 0.5% at maximum.

<Table 2-13> Export and Import of Heating Equipment

Radiators				
Japan	10,238	100 674	286,901	
Canada	1,327	123,674	135,861	56,770
U.S.A.	1,252,005	21,675	1 000 54	58,-13
India		259,923	1,079,564	103,575
Indonesi	a -		80,000	3,143,-113
Singapor			296,901	9,162,781
Others	6,853	E 21E	27 222	56,770
Total	1,270,423	5,215	27,819	2,550
		410,487	1,620,145	162,895
Solar Collec	ctors and Par	rts 4 6 9 6		
Australia	a –	2,000,961	-	3,143,213
Austria	-	453,861	75-54	5,145,215
U.S.A.	-	453,-361		25 006
France	-	26,890	35 -00	25,006
Others	1,237,403		_	7 212
Total	505,-231	2,481,712	381 - 111	7,213
Wrand Total		16,562,300		3,175,432
Air Heaters				
Japan	12,531	553,485	25,118	999 935
Canada	Korean -Custon	4,022	on -	998,935 19,268
U.S.A.	1,620	970,348	26,850	787,095
Italy	-			139,507
Belgium	Domest- o Mar	ufactur-era	_	
Others	6,348	10,488	79,789	68,313
Total	20,499	1,538,343	131,757	1,723 2,014,841
	Lotte Englis		M Mfg. Co. Les	2,014,041
Electric Rad	iators & Hea	ters		
Japan	1,062,759	4,970,928	298,291	2,238,703
Canada	18,819	-	1,564,921	46,479
U.S.A.	2,057,039	140,531	4,919,022	169,236
R.China	Tel : -(02)=7	54-6707-	87,753	422,516
Belgium	135,424	K28137/8	633,559	-
France	Pax 1 -021 3	56-2321-	188,022	77,098
Italy	-	-	_	173,376
W/G	Doiler-	580,892	20,170	878,573
U.K.	-	88,937	35,354	407,027
Spain	Rocket- buile	r Industrial C	o., Itd.	177,261
Others	155,329	124,015	184,676	146,005
Total	3,427,370	5,905,303	7,931,768	4,736,274
Total				
	1 100 700	6 100 000		
Japan	1,120,788	6,199,223	531,504	4,680,425
Canada	20,146	25,697	1,564,921	65,747
U.S.A.	5,277,534	2,259,712	6,402,326	2,106,601
R.China		-	87,753	422,516
India			80,000	-

27,819		
1,620,145		
-		

Indonesia - Singapore - Belgium - France - Australia - W/G - Italy 1,018 Denmark - Nethlds - Spain - Sweden - Swiss - U.K Austria - Libya - U.A.E. 1,237,403 Others 605,231 Grand Total 8,262,120 1	3,199,489 2,000,961 759,344 611,879 - - 456,969 - 453,861 - 595,165 6,562,300	296,901 	56,770 68,313 9,750,268 3,143,213 4,161,281 1,556,962 2,044,863 557,187 177,261 - 75,166 407,027 - 209,083 29,482,683
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Source: Statistical Yearbook of Foreign Trade, 1988&1989 Korean Customs Administration

(2) Major Domestic Manufacturers

- Gas Boiler

a. Lotte Engineering Machinery Mfg. Co., Ltd.

Tel: (02) 716-0010 Fax: (02) 718-1254

b. Daewoo Electronics Co., Ltd.

Tel: (02) 754-0707 Tlx: DAELEC K28177/8 Fax: (02) 756-2828

- Oil Boiler

a. Rocket Boiler Industrial Co., Ltd. Tel: (02) 743-5131/4

Tlx: KASPREB K24868

b. Daewoo Carrier Co., Ltd.

Tel: (02) 756-7958 Tlx: DCAIRCN K32765 Fax: (02) 756-7941

	296,901 - 3.195,489 - 2,000,961 - 2,000,961 - 2,000,961 - 759,344 - 759,344 - 2,060 - 1,556,962 - 2,044,863 - 357,187 - 455,869 - 453,861 - 453,861 - 22,209 - 22,209 - 22,209 - 22,209 - 22,209 - 22,209 - 22,209	
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Source : Statistical Yearbook of Poreign Trade, 198861989

(2) Major Domestic Manufacturers

- das Boller á. Lotte Engineering Machinery Mfg. Co., Etd Tel: (02) 715-0010 Fax: (02) 718-1254
 - b. Daewoo Electronics Co., Ltd.
 Tel: (02) 754-0707
 Tlx: DAELEC K28177/8
 Fax: (02) 756-2828

relica 110 -

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 - b. Dagwoo Carrier Co., Ltd. Tel: (02) 756-7958 Tlx: DCAIRCN K32765 Fax: (02) 756-7941

Heating Equipment

Product : infrared gas heaters
Supplier : INFRA-KOLH (W/G)
Adent : Yung Sang Corp.
Tel : (02) 782-6247/8
Tix : YUSONG W22830
Fax : (02) 784-0206

Supplier: Rokbest Distributing (USA)
Agent: Samho Trading Corp.
Tel: (02) 782-0451
Fax: (02) 756-0555

Supplier: Micotra (Italy)
Supplier: Micotra (Italy)
Agent: Ha Rim Trading Co., Ltd.
Tel: (02) 540-7181
Tlx: K25860

d. Product : building material
Supplier : Ametra (USA)
Agent : Jung Ang Corp.
Tel : (02) 783-3447

e. Product : air heaturs
Supplier : Dash World USA
Agent : Dai Ryung Trading Co., Ltd.
Tel : (02) 269-3522
TIX : DRYUNA R25037
Fax : (02) 272-7245

f. Product : boiler
Supplier : Shoricau Energy (Japan)
Agent : Asia Protech Co.
Tel : (02) 548-4335
Tix : APCOSC X22909
Tix : APCOSC X22909
Tix : (02) 543-6735

g. Product : gas boiler

Supplier: Biklim (Italy) : Korea Biklim Co., Ltd. Agent

Tel: (02) 545-0012 Tlx: KORBIK K32741

h. Product : gas boiler

Supplier : Taiyo Energy (Japan) Agent : Hanjin Corp.

Tel: (02) 717-3835/6 Tlx: HANJIN K23338 Fax: (02) 717-3833

Product : gas fired chiller, heater i. Supplier : Pacific Gas Energy (USA) : Samchang Commercial Co., Ltd. Agent

Tel: (02) 783-8689/3870

Tlx: SANKYO K26634

j. Product : steel boiler

Supplier : EMA overseas (USA) : Youman Ind. Co., Ltd. Agent

Tel: (02) 738-4371/5054 Tlx: YOUMAN K26605

Fax: (02) 738-2145

k. Product : oil & gas burner

Supplier : Benton-electro oil AB (Sweden)

Agent : KMC Corp.

Tel: (02) 744-0785 Fax: (02) 738-2145

Product : heater, boiler 1.

Supplier: American standard (USA)

Int'l Trade (usa)

: Standard Int'l Trade Agent

Tel: (02) 275-8952 Fax: (02) 277-1997

m. Product : boiler

Supplier : L & W Equipment (USA) : Well Trading Co., Ltd. Agent

Tel: (02) 562-1341 Tlx: KWELL K24112 Fax: (02) 552-9329

(3) Import Agencies

- Heating Equipment

Product : infrared gas heaters Supplier : INFRA-KOLB (W/G)

Agent : Yung Sang Corp.

Tel: (02) 782-6247/8 Tlx: YUSONG K22830 Fax: (02) 784-0896

Product : boiler, air conditioner b. Supplier: Rokbest Distributing (USA)

Agent : Samho Trading Corp.
Tel: (02) 782-0451

Fax: (02) 756-0695

c. Product : fan

Supplier : Nicotra (Italy)

Agent : Ha Rim Trading Co., Ltd. Tel: (02) 540-7181 Tlx: K25860

Product : building material

Supplier : Ametra (USA) Agent : Jung Ang Corp.

Tel: (02) 783-3447

e. Product : air heaters Supplier : Dash World USA

Agent : Dai Ryung Trading Co., Ltd.

Tel: (02) 269-3522 Tlx: DRYUNA K25037 Fax: (02) 272-7245

f. Product : boiler

Supplier: Shoritsu Energy (Japan)

Agent : Asia Protech Co.

Tel: (02) 548-4335 Tlx : APCOSC K22909 Fax: (02) 547-9730

-

n. Product : intra heater

Supplier: Thermal Devices (USA)

Agent : Jae Kyung Co.

Tel: (02) 272-0004 Tlx: K29271

Fax: (02) 272-9867

Product : gas boiler Supplier : Koge (W/G) : Jin Energy Co. Agent

Tel: (02) 718-8233/5 Tlx: JINFAX K28908 Fax: (02) 718-8236

Product : gas boiler p.

Supplier : Cointra (Spain)

Agent : Kyong Dong Trading Co. Tel: (02) 779-1850 Tlx: KYTIGER K28631 Fax: (02) 757-3968

q. Product : boiler

Supplier : L & W Equipment (USA)
Agent : Dae Dueg Corp.

Tel: (02) 755-3757 Tlx: CSKGOLD K29817

r. Product : Doller Supplier : Konhose (USA) : Sebong Corp. Agent

Tel: (02) 798-1401/2 Fax: (02) 797-9919

Product : boiler s.

> Supplier : Urasi Trade (USA) : Young Jin Co. Agent

Tel: (02) 265-3267 Fax: (02) 273-7951

Product : coal boiler Supplier : SKB INt'l (UK) Agent : Samju Int'l Corp.

> Tel: (02) 752-2191/3 Tlx: JAEKSAM K28712

u. Product : multi fuel boiler Supplier: HS Tarm (Denmark)

Product : gas fired chiller & hot water boiler

Supplier: The domestic (USA)

Agent : Whinan Co.

Tel: (02) 547-6245

Tlx: K26858

Fax: (02) 548-8950

(4) Tariff Schedule

<Table 2-14> Tariff Schedule for the Importation of
Boilers, Radiators, and Heaters

	1990	1991	1992	1993
Non-electric Electric Solar Collector	13% 16% 10%	11% 13% 10%	9% 10% 9%	8% 8%
		100	20	8%

Source: Tariff Schedules of Korea, 1989
Korea Customs Research Institutes

2. Smart Home System

(1) Market Outlook

In 1989, the market size for the smart home system was approximately US\$ 28.8 million, and is estimated to double to US\$ 57.5 million in 1990. Moreover, the demand for 1991 is expected to jump to US\$ 100 million and by the 21st century to a gigantic amount of US\$ 287.5 million depending upon the advertising effect on the future potential customers. However, this is an estimated figure collected from a survey of the leading producers in the home automation industry since there were no other published data available.

Year	Amount (in US\$ million)
1989	28.8
1990	57.5
1991	100.5
2000	287.5

Source : Field survey

<Table 2-14> Tariff Schedule for the Importation of
Boilers, Radiators, and Western

	118	

Source : Tariff Schedules of Korea, 1989 Korea Customs Research Institutes

Smart Home System

(1) Market Outlook

In 1989, the market size for the smart home system was approximately USS 18.8 militon, and is estimated to doubte to USS 87.5 militon in 1990 Moreover, the demand for 1991 is expected to jump to USS 100 militon and by the 21st century to a gigantic amount of USS 287.5 militon depending upon the advertising effect on the future cottential customers. However, this is an estimated figure collected from a survey of the leading producers in the nome automation industry since there were no other published data available.

<Table 2-15> Estimated Domestic Market Size
of Home Automation System

Source : Field survey

The home automation system in Korea was developed by several major electronic companies in order to supply large scale apartment development. Today, the demand continues to grow and manufacturers are planning to diversify their product lines for different market segments by 1991.

Advertisement is presently television oriented but companies have found it more important to provide set displays of home automation systems to illustrate the system directly to the consumers.

However, concerning the needs and wants of the consumer, such devices should first be very easy to operate. The majority of Koreans, especially those above the age of 45 who have most of the purchasing power, strongly prefer easy accessible methods. Complicated systems or sophisticated wire installation, which can cause critical disasters from a simple operational mistake, are apt to lose credibility in the Korean market. Secondly, extended after service programs with a life time guarantee will be a 'must' for the smart home system.

(2) Major Domestic Manufacturers

The domestic market is largely dominated by 2 major companies - Samsung Electronics and Goldstar with a share of 47% and 40%, respectively. Other companies like Samick Ceramic, OPC, Hyundai, Daewoo, and Lotte cover a small portion of the market, 13% all together.

For imported products, National's video door phone has entered the Korean market, but its relatively expensive price and small quantities leave it beyond competition. Most of the products are directly imported and sold in the Chunggyechon area which is known as a market for mass computer software stores, electronics, books, house-hold retail and some black marketing. Foreign products will have difficulties entering the market due to the lower labor costs in Korea and high tariffs which may raise the market price.

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(Unit: %)

Others Samsung Goldstar Samick OPC Daewoo Hyundai Lotte

Source : Field survey

a. Samsung Electronics 3rd. Floor, Plaza Jang Woo Bldg., 628-14, Yoksam-Dong, Kangnam-Ku, Seoul
Tel: (02)5593-161 Fax: (02)5593-179 Kangnam-Ku, Seoul

b. Goldstar Telecommunication Co., Ltd. Lucky-Goldstar Twin Towers, 20, Yoido-Dong, Youngdeungpo-Ku. Seoul Youngdeungpo-Ku, Seoul Tel: (02)787-1114 Tlx : TELSTAR K27242 Fax: (02)785-1018

c. Samick Ceramic Co., Ltd. 163-3, Samsung-Dong, Kangnam-Ku, Seoul Tel: (02)552-5451 Fax: (02)555-0598

d. Oriental Precision Co., Ltd. (OPC) 71-2, Nonhyon-Dong, Kangnam-(Ku, Seoul Tel: (02)549-3671 Tlx: ORANGE K27335 Fax: (02)549-7679

(3) Import Agencies

a. Product : fire proofing material Supplier: Mandoval coating (UK) Agent : Shinsung Trading Co. Tel: (02) 730-5238

b. Product : fire alarm and sprinkler system
Supplier : Int'l Trade (USA)
Agent : Standard Int'l Trade Agent : Standard Int'l Trade Tel: (02) 275-8952 Tlx: (02) 277-1997

<Table 2-16> Market Share of Home Automation System
by Major Domestic Mary

(9 : JinU)

Samsung Goldstar Samiok OPC Daewoo Myundai Lotte

47 40 13

Source : Field survey

a. Samsung Electronics

3rd. Floor, Plaza Jang Woo Bldg., 628-14, Yoksam-Dong,
Kangnam-Kn; Seoul
Tel: (02)5591-161
Fax: (02)5592-179

O. Goldstar Telecommunication Co., Ltd.
Lucky-Goldstar Twin Towers, 20, Yoldo-Dong,
Youngdeungpo-Ku, Seoul
Tel: (02)787-1114
Fax: (02)785-1018

G. Samick Ceramid Co., Ltd.
163-3, Sammung-Dong, Kangnam-Ku, Seoul
Tel: (02)552-5451 Fax: (02)555-0598

d. Oriental Precision Co., Ltd. (OPC) .
71-2, Nonhyon-Dong, Kangnam-(Ku, Seoul
Tel: (02)549-3671 Tlx: ORANGE K27335

(3) Import Agencies

Supplier: Mandaval coating material
Supplier: Mandaval coating (UX)
Agent: Shinsung Trading Co.
Tel: (02) 730-5238

Eroduct : fire clarm and aprinkler system Supplier : Int'l Trade (USA)

Agent : Standard Int'l Trade

Tel : (02) 275-8952

Tix : (02) 277-1997

c. Product : alarm monitoring system

Supplier : CMP (France)
Agent : Seil M&C Trading Co.

Tel: (02) 265-5748 Tlx : SEKMLC K26203

(4) General Specifications

<Table 2-17> Home Automation System Model & Price

Model	Retail Price (US\$)	Installatior Fee (US\$)	Functions
SHT-101	1,438	144	- Communication - Video Monitor & Door Camera - Security
SHT-206	2,156	144 (plus wiring)	- SHT-101 plus Tele Control and electronic sensor alarm system for gas leakage, fire & burglar
SHT-208	3,594	144	- SHT-206 plus control of time, channels, on/off, error, and various conditions of function with a medical alarm kit.

Source : Samsung Electronics

Each function of the home automation system is to be tested by governmental institutions. The telecommunication sytem has to be registered at the Korea Telecommunication Authorities (KTA), the electronic fire and gas sensor at the Korea Fire Equipment Inspection Corporation, and the power system should have approval by the Industrial Advancement Administration.

(5) Distribution Channel

The distribution structure is quite simple as the main companies and agencies sell directly. However, because of the sophisticated installation, responsibility and after service maintenance, manufacturers tend to manage and manipulate the operation itself.

c. Product : alarm monitoring system
Supplier : CMP (France)
Agent : Seil Mac Trading Co.

Tel: (02) 265-5748

(4) General Specifications

<Table 2-17> Home Automation System Model & Price

Punctions				
SHT-206 plus control of time, channels, on/off, error, and various conditions of function with a medical element.				

Source : Samsung Electronics

Each function of the home automation system is to be tested by governmental institutions. The telecommunication sytem has to be registered at the Korea Telecommunication Authorities (KTA), the electronic filte and gas sensor at the Korea Fire Equipment Inspection Corporation, and the power system should have approval by the Inquetrial Advancement Administration.

(5) Distribution Channel

The distribution structure is quite simple as the main compenies and agencies sell directly. However because of the sophisticated installation, responsibility and after service maintenance, mammisciurers tend to munage and manipulate the operation itself.

II.3. Interior Fittings 900,482 602,867

1. Tiles

(1) Market Outlook

The demand for larger-sized tiles including the 150mm x 150mm size was very large during the year of 1989. However, the supply should be sufficient to cover the demand in 1990. This is because major domestic manufacturers increased their annual production capacity to 46.3 million meters for the construction boom in apartments.

The domestic market size for tiles was estimated to be US\$ 275.5 million in 1989 and is forecasted to reach US\$ 316.3 million in 1990.

Domestic manufacturers supplied 85% of the total demand while the remaining 15% was imported from foreign countries in 1989.

Tiles for interior and exterior finishings hold 45% and 30% of the market, while flooring tiles and others such as mosaic tiles hold 15% and 10%, recpectively.

<Table 2-18> Export and Import of Tiles

*/ G			135,651	(Unit : US\$)
Orand Total	Export	1988 Import	Export	989 Import
of Natural Stones		orbeek of For	eion Trado 100	
Japan Canada	385,633 17,473	istoms -dmini	758,839	20,813
U.S.A. R.China	7,570	117,592	-	215,245
Others Total	63,815 474,491	18,078 135,670	11,272 770,111	45,144 - 281,202
of Cement or Arti	ficial Sto	nes		export
Japan Italy Indonesia U.S.A. Spain R.China Others Total	28,001 - 1,980 - 21,919 51,900	9,378 707,030 282,956 233,443 - 118,669 1,351,476	99,695 - 40,576 - 25,810 166,081	28,744 604,818 269,116 25,376 67,856 45,375 162,326 1,203,611

II.3. Interior Fittings

1. Tiles

(1) Market Dutlook

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<Table 2-18> Export and Import of Tiles

Ceramic			
Japan 900,482	602,857	1,092,920	and the
Canada 1,154,021	-	1,191,215	124,175
U.S.A. 7,281,667	1,107,224	5,675,088	441,556
R. China	the salket	shares of-8.3%	376,892
Hongkong - Indonesia -	Ye Che 1	63,972	996,202
Thailand -	irdes ues to	most the -larg	409,879
Spain _	a constant	on boom by s	330,205
W/G 400,493	660,453	10,681	860,960
Italy -	1,049,514	135,651	688,379
Turkey -	-/015/514	ADUEL MATREE S	1,816,851
Austral 2,448,378	that finis	1,817,756	229,920
Others 2,160,824	1,661,056	1,187,842	1 221 066
Total 14,345,865	5,081,104	11,175,125	4,221,066 10,496,085
Total			
Japan 1,314,116	612 225		
Canada 1,171,494	612,235	1,951,454	173,732
U.S.A. 7,291,217	1,458,259	1,191,215	stones,-
Italy _	1,756,544	5,715,664	682,177
Austral 2,448,378	it of the to	1,817,756	2,421,669
R. China	in 1889.	-/01///30	167 122
Indonesia -	it inuc n siy i	ncrease i- the	467,411 678,995
Spain - HongKong -	Esamie tile	10,681	928,816
Tailand -	1988) as th	63,972	996,202
W/G -			330,205
Turkey -	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	135,651	688,379
Others 2,647,051	2,741,212	1 224 024	229,920
('300 - 7 / 77 7	6,568,250	1,224,924 12,111,317	4,383,392
		//-/	11,980,898

Source: Statistical Yearbook of Foreign Trade, 1988 & 1989, Korean Customs Administration

The quality of domestically manufactured tiles is regarded as good enough to be exported to some countries, in particular the U.S.A., Japan, Australia and Canada with the share of 47.2%, 16%, 15% and 9.8% of total export (US\$ 12.1 million) in 1989, respectively. However, exports decreased mainly to meet the domestic demand, and this trend is expected to continue for next several years.

As shown above, the import market for tiles expanded by 82.4% while the export of tiles, particularly ceramic tiles, declined slightly from 1988 to 1989. The fact

	1,092,920 1,191,215 5,675,088 63,972 10,681 135,651	502,857 1,107,224 550,453 1,049,514		
173,732 2,421,669 467,411 678,395 678,395 928,816 928,816 936,202 938,379 330,205 688,379 229,920				

Source : Statistical Yearbook of Foreign Trade, 1988 & 1989, Korean Customs Administration

The quality of domestically manufactured tiles is regards ed as good enough to be experted to some countries, in particular the U.S.A., Japan, Australia and Canada with the, share of 47.28, 168, 158 and 9.8% of total expert (US\$ 12.1 million) in 1989, respectively. However, experts decreased mainly to meet the domestic demand, and this trend is expected to continue for next several years.

AS Showh above, the import market for tiles expanded by 82.48 while the export of tiles, particularly ceramic tiles, declined slightly from 1988 to 1989. The fact

that the total amount of imports from Japan and the U.S.A. decreased apparently in 1989 in comparison with that of 1988 means that the import sources were diversified into countries such as Hongkong, Spain, West Germany, and Indonesia with the market shares of 8.3%, 7.8%, and 5.6%, respectively. One important reason Korea diversified import sources was to meet the largely increasing demand for the construction boom by supplying lower quality tiles from South-east Asian countries like Hongkong, Indonesia and Thailand. Italian imports, which have held more than 20% of the import market share of tiles for last few years, will continue in the future. due to the fact that Italy exports high quality decorative tiles to satisfy upper-class Koreans with the decoration-conscious minds and consumption mood luxurious goods.

The tile import market in Korea is divided into three sections including ceramics, cement or artificial stones, and natural stones.

Ceramic tiles took 77.4% of the total import market for tiles in 1988 and 87.6% in 1989. The market of ceramic (Total import value of ceramic tiles in 1989 was doubled, increase.

Canada imported Korean tiles in 1989 totaling 9.8% of total export, ceramic tiles in most cases (7.9% in 1988).

(2) Major Domestic Manufacturers

a. Samyung Ceramics Co., Ltd. Tel: (02) 266-8085 Tlx: SAYUKEM K 27350 Fax: (02) 266-8086

b. Dongsu Industrial Co., Ltd.
 Tel: (02) 736-2701
 Tlx: DOSIND K 24916

Fax: (02) 739-2821

c. Far East Ceramics Co., Ltd.

Tel: (032) 523-2341

Tlx : SHKCO K 27412 / K 27416

Fax: (023) 524-2344

that the total amount of imports from Japan and the U.S.A. decreased apparently in 1989 in comparison with that of 1988 means that the import sources were diversified into countries such as Hongkong, Spain, West Germanny, and Indonesia with the market shares of 8.1%, 7.8%, and Indonesia with the market shares of 8.1%, 7.8%, and 5.5%, respectively. One important reason Korea diversified import sources was to meet the largely increasing demand for the construction boom by supplying lower quality tiles from South-east Asian countries like Hongkong, Indonesia and Thailand, Italian imports, which have neld more than 10% of the import market share of the last few years, will continue in the future decorative tiles to satisfy upper-class Koreans with the decorative tiles to satisfy upper-class Koreans with the decoration-conscious minds and consumption mood for luxurious goods.

The tile import market in Korea is divided into three sections including ceramics, cement or artificial stones, and natural stones,

Ceramic tiles took 77.4% of the total import market for tiles in 1988 and 87.6% in 1989. The market of ceramic tiles is expected to continuously increase in the future (Total import value of ceramic tiles in 1989 was doubled, comparing with that of 1988) as the demand continues to increase.

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Tix: DOSIND X 24916
Fax: (02)4739-2821

C. Far Hast Deramics Co., Ltd. Tel.: (032) 523-2241 Tlx: SHKCO K 27412 / K 27416 Fax: (023) 524-2344 d. Sungchang Enterprise Co., Ltd.

Tel: (051) 29-0161/9

Tlx : SUNPLY K 53326 / K 23573

Fax: (051) 205-6220

As shown in the table below, Samyung holds 21% of production, and is followed by Dongsu , Far East and Sungchang.

<Table 2-19> Domestic Production of Tiles (1989)

		,
Company	Annual Production ('000 m2)	Market Share (%)
Samyung Ceramics Co., Ltd. Dongsu Industrial Co., Ltd. Far East Ceramics Co., Ltd. Sungchang Enterprise Co., Ltd. Sam Won Ceramics Co., Ltd. Iwha Industrial Co., Ltd. Daelim Ceramic Co., Ltd. Daeho Tile Co., Ltd. Others Total	8,330.6 6,307.5 3,768.6 3,570.3 3,490.9 3,173.6 1,388.4 357.0 9,362.0 39,748.9	20.9 15.9 9.5 9.0 8.8 8.0 3.5 0.9 23.5 100.0

Source : Korea Ceramic Industry Cooperative

(3) Import Agencies

- Ceramic Tiles

a. Product : ceramic tiles

Supplier: Panaria, Refin, Ilsa (Italy)

Product : PVC tile

Supplier : Ceramica Dolmite (West Germany)

Agent : Italinipex Korea

Tel: (02) 566-8482 Tlx: ORATRA K22296 Fax: (02)555-8330

b. Product : tiles

Supplier: Luen Tai Emg. & Trading (HK)

Agent : Sam Hyun

Tel: (02) 277-5271 Fax: (02) 277-5270 d. Sungchang Enterprise Co., Ltd. Tel: (051) 29-0161/9 Tlx: SUNPLY K 53326 / K 23573 Fax: (051) 205-6220

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Supplier : Panaria, Refin, Ilsa (Italy)
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Tel : (02) 566-8482
Tix : ORATRA K22296
Tax : (02)555-8330

Supplier tiles
Supplier tiles Fat Emg. & Trading (HK)
Agent tisam Hyun
Tel: (02) 277-5271
Fax: (02) 277-5271

c. Supplier : Cartec (USA)
Agent : Kochico corp.

Tel: (02) 782-5057 Fax: (02) 785-5060

d. Supplier : H & R Johnson Tile (UK)

Agent : Han Jun Co., Ltd.

Tel: (02) 269-9106/8 Tlx: GLAND K24583 Fax: (02) 272-2949

e. Supplier : Stroher (West Germany)

Klingenberg Dekoramic (West Germany)

Agent : Daeboong & Co., Ltd.

Tel: (02) 545-2941 Tlx: BOONG K27171 Fax: (02) 545-2943

f. Supplier: The First Root (UK)

Agent : Jung Woo Development Co., Ltd.

Tel: (02) 784-5555
Tlx: JUNGWOO K23333
Fax: (02) 784-4606

g. Supplier : Isekyu (Japan)

Agent : The Asia Trading Co.

Tel: (02) 272-6354/5 Tlx: PRKO K28379

h. Supplier : Ceramica Rangno SPA (Italy)

Agent : Sae Ki RTN Co.

Tel: (02) 252-2252 Tlx: SAEKIFM K27431 Fax: (02) 231-7691

i. Product : various tiles
 Supplier : Comex (USA)
 Agent : Seoul Comex

Tel: (02) 562-9681 Tlx: COMEXK K32628 Fax: (02) 552-9450

j. Supplier : Gail (W/G)

Agent : Kusan Trading Co.

Tel: (02) 783-9625/7 Tlx: KUSAN K23377 c. Supplier: Cartec (USA)
Agent: Kochico corp.
Tel: (02) 782-5057
Fax: (02) 785-5060

1. Supplier : H & H Johnson Tile (UK)
Agent : Han Jun Co., Ltd.
Tel : (02) 269-9106/8
Tlx : GLAND K24583
Fax : (02) 272-2949

Agent: Stroher (West Cermany)

Klingenberg Dekoramic (West Cermany)

Agent: Daeboeng & Co., Ltd.

Tel: (02) 545-2841

Tlx: BOONG K27171

Fex: (02) 545-2942

Agent : The First Root (UK)
Agent : Jung Roo Development Co., Ltd.
Tel : (02) 784-5555
TIX : JUNGWOO K23333
FeX : (02) 784-4666

T. Supplier: [Sekyn (Japan)
Agent : The Asia Trading Co.
Tel: (D2) 272-656/5
Tlx: PRHO K28379

h, Supplier : Ceramica Rangno SFA (ICaly)
Agent : Sae Ki HTN CO.
Tel : (02) 252-2252
Tlx : SAEKIEM K27631
Fax : (02) 231-7661

Product : various tiles
Supplier : Comex (USA)
Agent : Secul Comex
Tel : (02) 562-9681
Tlx : COMEXK K32628
Fax : (02) 552-9450

Supplier : Gail (W/G)
Agent : Kusan Trading Co.
Tel : (02) 783-9628/7
Tlx : KUSAN K23377

k. Product : ceramic mosaic tiles

Supplier : Link (USA) Agent : Dong-a Trading

Tel: (02) 555-1083 Tlx : EASTCO K23913 Fax: (02) 552-6630

1. Supplier : Buchtal (W/G)

Gardenia (Italy)

Agent : Hanwoo Trading Co.

Tel: (02) 546-3262 Tlx: HANWOO K23270

m. Supplier : Sawada (Japan)

D'imola (Italy)

Agent : Namil Commercial Co. Tel: (02) 269-4290 Tlx: MOCNDM K23231

n. Supplier : Okuyawa (Japan)

Agent : Sedo Corp.

Tel: (051) 44-8121

o. Supplier : Ceramica "und" (Italy)

Iris Ceramica (Italy) Ital Ceramica (Spain)

Agent : Hangorl Co.

Tel: (02) 567-6091 Tlx: HANGOL K24152

p. Product : ceramic tiles

Supplier : Fuji Yogyo (Japan) Product : pebble stone tiles
Supplier : Kato (Japan)
Agent : Royal Enterprise Co., Ltd.

Tel: (02) 562-3141/6 Tlx: ROYSTAR K24637 Fax: (02) 555-6256

q. Supplier : Ragno (Italy)

Agent : Int'l Polymers Co., Ltd.

Tel: (02) 753-7061/2 Tlx: POLYKIM K24120 Fax: (02) 753-0798

k. Product : ceramic mosaic tiles

Agent : Dong-a Trading

Tel: (02) 555-1083 TLX: SASTCO K23913 Fex: (02) 552-6630

1. Supplier : Buchtal (W/G)
Gardenia (Ttalu)

gent : Hanwoo Trading do. Tel : (02) 546-3265

TIX : HANWOO K23270

m. Supplier : Sawada (Japan)

Agent : Namil Commercial Co.
Tel: (02) 269-4290
Tlx: MOCNDM x22221

Agent : Okuyawa (Japan) ...
Agent : Sedo Corp.
Tel : (051) 44-812

o. Supplier : Ceramica "und" (Italy)

Ital Ceramica (Italy)

Ital Ceramica (Italy)

Agent : Hangorl Co. Tel : (02) 567-6091

P. Product : ceramic tiles
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q. supplier : Ragno (Italy)
Agent : Int'l Polymers Co., Ltd.
Tel : (02) 753-7061/2
Tel : POLYKIM K24120

Eax : (02) 751-0798

(4) KS (Korea Industrial Standard) Specifications

- Ceramic Tile

<Qualification>

reside repid the	ну	drati Rat	ng e(%)	(aı	e-press uto-cla kgf /	sure Def ave exp.) sq.cm	acement (g)
	Earthenware Stone Porcelain Earthenware Stone	less less	than than than	10 18 1.0	10 7 10 10		
Floor Mosaic	Earthenware Stone Earthenware	less	than	1.0	7 10 7 10	less	than 0.1 than 0.1 than 0.1

(5) Tariff Schedule

<Table 2-20> Tariff Schedule for Tile Importation

	1990	1991	1992	1993
Ceramic	13%	11%	9%	
Cement	13%	11%	9%	8% 8%

Source: Tariff Schedules of Korea, 1989 Korea Customs research Institute

(6) Distribution Channel

Tiles are distributed through agencies to the following three kinds of consumers - larger constructors, mediumsmall constructors and regular consumers. These groups hold 80%, 15% and 5% of the total consumption, respectively.

(4) KS (Korea Industrial Standard) Specifications

pressure to-clave exp kgf / sq.cm			
		Earthenware Stone Porcelain Earthenware	

(5) Tariff Schedule

<Table 2-20> Tariff Schedule for Tile Importation

	11.8	

Source : Tarilf Schedules of Rores, 1989 Kores Customs research Institute

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2. Sanitary Fixtures and Bathroom Kits

(1) Market Outlook

Due to the government's policy for the development of residential housing, new cities are in the process of rapid development. However, there is a great shortage in the supply of sanitary fixtures. While the supply increased by 17%, the demand jumped to 35%.

The local market size of sanitary fixtures and bathroom kits is estimated to be US\$ 244.3 million (84%) and US\$ 46.9 million (16%), respectively.

Since 1988, the Korean Government has encouraged imports in order to supplement the shortage of construction materials by lowering the trade tax rate of the quota system from 20% to 5%.

However, low quality materials from South-east Asian countries like Thailand are ruining the impression and lowering the purchase rate for all foreign products in the Korean market.

<Table 2-21> Supply & Demand for Sanitary Wares and
Bathroom Kits

Construct		Oc Units)	400	(Unit:	000 S	ets, %)
for Constru for Repair for Non-Ron	Q'ty	988 Increase Rate	198 Q'ty	Increase Rate		990 Increase Rate
Demand -Domestic -Export	554 545 9	21 24 -67	636 627 9	15 15 0	741 732 9	17 17 0
Supply -Manufactured -Imported	600 400 200	40 -9 -	745 520 225	24 30 13	740 550 190	-1 6 -16
Inventory	49		158	his is as	157	tures ue to

Source : Korea Ceramic Industry Cooperative

. Sanitary Fixtures and Bathroom Kits

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<Table 2-21> Supply & Demand for Sanitary Wares and Bathroom Nits

Source : Korsa Ceramic Industry Cooperative

On the contrary, the demand for imported luxury products (for instance, a bathroom sink, toilet and bath tub as one set) raging in price from US\$ 4,313 to US\$ 11,500 is gradually increasing in the market where ceramic products make up 94.8%. Among these items, 43.8% are imported from the United States.

Consumer preference for these products from the U.S. or Japan is accelerating, especially in the higher class in the Kangnam area.

The on-going shortage in Korean building materials is raising the current market price to double the manufacturers' price.

The expansion which will enlarge the capacity of the major companies in this industry, will settle the shortage of supply by 1992.

darket.	e Green G	(Unit: '00	00 Sets)
	1990	1991	1992
1. Projected No. of Houses Constructed ('000 Units) 2. Deamnd	400	430	470
for Construction for Repair & Maintenence for Non-Housing Construction Total 3. Production Capacity	480 68 137 685 600	516 74 147 737 730	564 80 161 805 730

Source : Korea Ceramic Industry Cooperative

The import market for sanitary fixtures and bathroom kits accounted for US \$38.8 million in 1989, an increase of 58.7% from US \$24.5 million in 1988. In addition, more than 80% of the market share is for sanitary fixtures (82.9% in 1988 and 83.1% in 1989). This is mainly due to the domestic demand for the new town construction plan, where exports showed a decrease of 15.4% from US \$24.6 million in 1988 to US \$20.8 million in 1989.

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<Table 2-22> Projected Demand and Supply for Sanitary Wares and Bathroom Wite

564 . 80 161 805 730		

Source : Korea Ceramic Industry Cooperative

The import market for sanitary fixtures and bathroom kits accounted for US 518.8 million in 1989. an increase of 58.7% from 55 524.5 million in 1983. In addition, more than 80% of the market share is for sanitary fixtures (82.9% in 1988 and 83.1% in 1989). This is mainly due to the domestic demand for the new town construction plan, where exports showed a decrease of 15.4% from US \$24.6 million in 1988 to US \$20.8 million in 1989.

Both export and import markets are concentrated basically on the two countries - the U.S.A. and Japan.

a. Export and Import of Sanitary Fixtures

Of the import market for sanitary fixtures, 91.4% of the import market were ceramic products in 1989. Also, imports doubled in 1989 in comparison with that of the previous year.

The U.S.A. holds approximately 50% of the import market which accounted for US \$16.6 million in 1989. However, low quality products, especially ceramic ones, are imported from Thailand, Brazil, and R. China to meet the demand for the appartment construction of relatively low income markets. After the U.S.A., the three countries above controlled the import market with market shares of 14.2%, 7.8%, and 6.7% in 1989, respectively.

The export market is quite different from the import market, as a lot of iron or steel products are exported through the world (69.8% of total export in 1988 and 64.4% in 1989), with about 90% of them going to the U.S. market.

<Table 2-23> Export and Import of Sanitary Fixtures

			30.40	(Unit:US\$)
U.R. Italy	Export	1988		989
Ceramic Japan Canada U.S.A. R.China Hongkong U.K. Indonesia Italy W/G Thailand Brazil Mexico Others Total	326,266 23,138 217,282 - - - - 419,101 985,787	Import 418,032 6,932,695 1,907,800 2,208,707 1,582,961 617,892 1,532,216 15,200,303	451,633 59,644 118,156 396,010 1,184 252,426	912,288 14,933,456 1,997,401 418,780 54,721 389,378 193,660 120,677 4,532,326 2,505,492 1,084,563 2,333,816
			, , , , , ,	29,476,558

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<Table 2-23> Export and Import of Sanitary Fixtures

Alumi	nium				
	Japan	_	1,582,961		
	HongKong	211,249	345,092	36,461	1,084,563
	U.S.A.	1,675	8,541	237,312	-
	U.K.	29 494 - 00		12,712	9,356
	W/G	******	9,000	19,954,427	32,249,640
	Others	tistinal- van	12,436	62 500	5,461
	Total	212,924	29,977	61,520	8 6 -
Plasti			29,911	348,005	14,817
FIASLI					
	Japan	4,868,847	1,472,468	5,043,807	339,724
	Canada	7,768	Sathroca Els	1,599	-
	U.S.A.	408,769	680,404	189,755	480,323
	Norway R.China	2,134	389,970	8-1989 In 119	
		e imports in	creased by D	6,170	165,069
	Hongkong Indonesia	Crease of 5	7% in the sa	14,410	,
	Thailand	these trend	B will conti	4,104	
	W/G	completion o	I the new to	wn construction	49,740
	U.K.	-	-	6,681	33,305
	Brazil	liens are in	on or steal	(94%) and or	16,083
	Others	F40 405	, Italy, Ina	iland, and Japa	23,423
	Total	548,405	264,970	96,761	62,005
	10041	5,835,405	2,807,812	5,363,287	1,192,411
Iron	n or Stee]	ı			, , , , , , , , , , , , , , , , , , , ,
	Japan	523,019	285,493	102 007	
	Canada	643,196		193,997	207,159
Ţ	J.S.A.	14,486,318	1,535,533	236,523	-
	R.China		-	11,630,318	1,195,152
	longkong	- 1988	-	11,855	6,978
	J.K.	Export-	Tanoport-	39,546	-
I	taly			20,330	79,494
W	1/G	122,850	191,565		52,108
0	thers	577,175	232,280	715,857	78,442
T	'otal	16,352,558	2,244,871	12,848,426	138,046
m					1,757,379
Total					
	apan	5,718,132	2,175,993	5,725,898	1 450 171
	anada	674,102	-	297,766	1,459,171
		15,114,044	9,157,173	11,950,941	16,618,287
	ongkong	220,111	20,099	292,452	420,898
	hailand	2	2,208,707	-	4,582,066
	.China		1,907,800	414,035	2,169,448
	ndonesia	34,402 3	04,445	4,104	389,378
	taly	64,218 1.7	01,745	56 -18	245,768
	/G	122,850	191,565	6,681	237,885
U.	.K.	-	-	272,756	79,494
					1

	016,680 .		
6,170			
		. 577,175	

1	Brazil Mexico Norway	2,134	1,582,961 617,892 389,970	-	2,528,915 1,084,563
Grand 7	Others Fotal	1,585,329 23,436,702	2,050,902 20,282,963	989,794 19,954,427	2,533,867 32,249,640

b. Export and Import of Bathroom Kits

Export decreased of 25% during 1988-1989 by US\$ 835 million while imports increased by US\$ 6,549 million in 1989, an increase of 57% in the same period. It is expected that these trends will continue for a while, at least by the completion of the new town construction.

The import items are iron or steel (94%) and ceramic (40.4%), with the U.S.A., Italy, Thailand, and Japan as major suppliers to Korea with market shares of 40.3%, 21.7%, 11.9%, and 9.7% in 1989.

<Table 2-24> Export and Import of Bathroom Kits

			(Unit	: US\$)
	1988		1989	
	Export	Import	Export	Import
Ceramic				
Japan	5,029	119,554	-	194,195
Canada	1,345	-	_	174,195
U.S.A.	23,442	473,542	43,411	695,441
Italy	22-, 302	53,660		216,953
France	115,489	_	_	
W/G		_	_	10,716
U.K.	tis-ical	_	_	5,923
R.China	9, Wores	320,099		84,302
Thailand		295,125		352,550
Brazil				771,018
Others	24 400	254,874		-
	34,402	304,445	23,534	316,762
Total	64,218	1,701,745	66,945	2,647,860

b. Export and Import of Bathroom Kits

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<Table 2-24> Export and Import of Bathroom Kits

Plas	stic				
	Japan	165,043	49,410	263,651	difficult
	U.S.A.	122,029	331,569	51,550	118,389
	R.China	-		31,330	345,099
	Thailand	in Colamia	R Co., tea	_	12,017
	Italy	1 (02) 2	6-5391 7 (0548	1 7-44KO -	8,784 3,920
	W/G	I RELIED !	25885 -	3.400/3	39,823
	U.K.	1 (92) 23	2-5442 7 19546	1 53-205xx-	9,719
	Others	32,347	31,543	17,882	7,719
	Total	319,419	412,522	330,083	537,751
Iron	or Steel		0-9611/3		,,,,,
	Japan	48,645	101 427		
	Canada	14,186	191,427	25,196	325,316
	U.S.A.	476,745	1,417,713	140 500	-
	R.China	D-oden	-11/113	142,712	1,598,643
	Italy	- 20	234,236	64,708	2,999
	W/G	38,671	113,457	Major	720,797
	Finland			112,932	70,092
	France	-		112,932	20 600
	U.K.	-	Production		29,602
	Others	153,605	100,466	45,985	15,252
	Total	731,852	2,057,299	391,533	122,061 2,884,762
Total					
	Japan	218,717	260 201		
	Canada	15,531	360,391	288,847	637,900
	U.S.A.	622,216	2 222 024	-	8 6
	W/G	38,671	2,222,824	237,673	2,639,183
	Italy	-	234,236		
	France	-	234,230	43,411	1,420,158
	U.K.	_	_		40,318
	Finland	10 0 0 T 1 D 0	_	112 022	109,273
	R.China	-	320,099	112,932	-
	Thailand	ich - s bab	295,125	64,708	367,566
	Brazil	- 000	254,874	WHEN THE BELLEVILLE	779,802
0	Others	220,354	370,560	87,401	120 000
Grand	Total 1,	115,489	4,171,566	834,972	438,823 6,548,861
					0,540,861

(2) Major Domestic Manufacturers

The sanitary wares market is a labor oriented industry formed by 4 major suppliers - Kelim, Daelim, Dongsu and

.29,602			

(2) Major Domestic Manufacturers

The sanitary wares market is a labor oriented industry formed by a major suppliers - Kelim, Daelim, Dongau and

Serim. Recently, these manufacturers have had difficulties maintaining their factory operation rates due to the lag work floor and frequent labor disputes.

a. Kelim Ceramics Co., Ltd.

Tel: (02) 266-6391 / (0546) 2-4460/3

Tlx: KELIM K 25585

Fax: (02) 272-5442 / (0546) 54-8055

b. Daelim Ceramic Co., Ltd.

Tel: (02) 730-9611/3 Tlx: DAELIM K 23279 Fax: (02) 738-4203

(Unit; '000 sets, %)

Company Produc Capac		Production	Market Share
Kelim Ceramics Co., Ltd. Daelim Ceramic Co., Ltd. Serim Ceramics Co., Ltd. Dongsu Industrial Co., Ltd. Total	210	165	47.1
	170	125	35.7
	43	30	8.6
	100	30	8.6
	523	350	100.0

Source : Korea Ceramic Industry Cooperative

(3) Import agencies

a. Product : bath tub set, lavatory, bidet set,

urinal set

Supplier : Eljer plumbingware (USA)

Agent : Sebong Corp.

Tel: (02) 798-1401/2 Fax: (02) 787-9919

b. Supplier: Armitage shanks (UK)

TG Sanitaryware (Thailand)

Europa SPA (Italy)

Agent : Dong Won Trading Corp.

Tel: (02) 645-0635 Tlx: DWTCORP K34148 Fax: (02) 649-3221 Serim. Recently, these manufacturers have had difficulties maintaining their factory operation rates due to the lag work floor and frequent labor disputes.

Tel: (62) 266-6391 / (0546) 2-4460/3 Tlx: KELIM X 25585 Fax: (62) 272-5442 / Y0545; 54-4055

> D. Daelim Ceramic Co., Ltd. Tel.: (02) 730-9611/3 Tlx: DAELIM X 23279 Fax: (02) 738-4203

(Unit; 1000 sets, %)

Source : Korea Ceramio Industry Connerativa

(3) Import agencies

a. Product : bath tob set, invatory, bidet set,

Supplier : Eljer plumbingware (USA) Agent : Sebong Corp.

Fax : (02) 787-9929

Supplier : Armitage shanks (UK)

Europa SPA (Italy)
Dong Won Trading Corp.
Tel: (02) 645-0635

ax : (02) 649-3221

c. Product : bath tub

Supplier: Merloni Termosanitari Spa (italy)

Agent : Int'l Marketing Corp.

Tel: (02) 273-2121 Tlx: IMARKET K28252 Fax: (02) 273-2282

d. Product : sanitary ware

Supplier : Ceramica Dolomite (W/G)

Product : bathroom set

Supplier: Flavia/Fais (Italy)
Agent: Italianpex Korea
Tel: (02) 566-8482
Tlx: ORATRA K22296
Fax: (02) 273-2282

e. Supplier : Genesis Trading (UK)

Agent : Joung Wook Corp.

Tel: (02) 548-3947/8 Fax: (02) 540-1841

f. Product : lavatory, bidet, toilet, bath tub,

sanitary fit

Supplier: Kohler (USA)
TPS (Japan)

Agent : Hong Sung Int'l Corp.

Tel: (02) 755-7266/8

Tlx : K23231

Fax: (02) 755-7269

g. Product : bath tub Supplier : Link (USA)

Agent : Dong-a Trading Co.

Tel: (02) 555-1083
Tlx: EASTCO K23913
Fax: (02) 552-6630

h. Product : ceramic sanitary

Supplies : Oespag (USA)

Agent : Mikeon Int'l Corp.

Tel: (02) 273-4591 Tlx: MIKEON K29453 Fax: (02) 272-2164

i. Product : closet seat cover, lavatory,

hand shower

Supplies: Pac-Rine Bd. Supply (USA)

Supplies: Ceramic sanitary
Supplies: Cespag (USA)
Agent: Mikson Int'l Corp.
Tel: (02) 273-4591
Tlx: MIKEOM K29453
Fax: (02) 272-2164

Supplies: Pac-Rine Ed. Supply (USA)

Agent : Bulim Corp.

Tel: (02) 269-4285 Tlx: MOCNDM K23231

j. Supplier : Ferdinand Menge Ohg. (W/G)

Agent : Yoojhin Ind. Co., Ltd.
Tel : (02) 730-8482/3
Tlx : YOOJHIN K24747

Fax: (02) 736-6971

k. Supplier: Rokbest distributing (USA)

Agent : Sam Ho Trading Corp.
Tel : (02) 778-0451
Fax : (02) 756-0695

1. Supplier : MEBC (UK)
Agent : Na HO Int'l

Tel: (02) 785-6701/2 Tlx: NAHOINT K22559 Fax: (02) 784-4893

m. Supplier : Bradley (USA)

Agent : Hanil Development Co., Ltd.

Tel: (02) 783-4412/9 Tlx: HANDECO K28573

n. Product : sanitary porcelain Sanitary : Oy Wartsila (Finland)

Agent : KMC Corp.

Tel: (02) 744-0785 Tlx: MOCNDN K23231 Fax: (02) 744-1607

o. Supplier : Mora Amatur Export (Sweden)

Agent : Kyeshin Co., Ltd. Tel : (02) 783-3744/8

Tlx: KESIN K25213 Fax: (02) 784-2310

p. Supplier : Ekco (USA)

Agent : Han Woo Int'l Co., Ltd.

Tel: (02) 269-1791/3 Tlx: EXIMHAN K25111 Fax: (02) 277-4340

q. Supplier : American standard (USA)
Agent : Standard int'l trade

Tel: (02) 275-8952 Fax: (02) 277-1997

Agent : Bulim Corp.

TIX: MOCHOM K23231

f. Supplier : Ferdinand Menge Ong. (W/G)
Agent : Yoojhin Ind. Co., Ltd.

Tel: (02) 730-8482/ Tlx: YOOTHIN K24747 Fax: (02) 736-6971

k. Supplier : Rokbest distributing (USA)
Agent : Sam Ho Trading Corp.

Tel: (02) 778-0451 Pax: (02) 756-0699

1. Supplier : MEBC (UK)

Tel: (02) 785-6701/2 Tlx: NAHOINT K22559 Fax: (02) 784-4893

m. Supplier: Bradley (USA)
Agent: Hanil Development Co., Ltd.
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TIX : HANDECO K28573

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O. Supplier : Mora Amatur Export (Sweden)
Agent : Kyesbin Go., Ltd.
Tel : (02) 783-3744/8
Tlx : KESIN K25213

p. Supplier : Ekco (USA)
Agent : Han Woo Int'l Co., Ltd
Tel : (02: 259-1791/)
Tel : (02: 259-1791/)

Pix": EXEMHAN K25111 Pax : (02) 277-4540

q. Supplier : American standard (USA)
Agent : Standard int: 1 trade
Tel : (02) 275-8952

(4) KS (Korea Industrial Standard) Specifications

a. Sanitary wares

<Qualifications>

ink-permeation : less than 3 mm

freeze-proof : no crack on the glaze

discharging capacity (diameter mm):

western-style siphon zet chamber pot (53)
other chamber pot (38)
urinal stall (18)
Each should be made large enough for a timber of
the specified diameter to pass through

b. Porcelain enameled bathtubs

<Qualifications>

- allowable defect range : hair-fine cracks, foam, stains, scratches, filth, twist and transformation should not be noticeable at a 60 cm distance under the natural light.
- bendings on the wall attaching side

si	ze		bending	range
	than 1000	1000mm mm		mm mm

- No cracks and peeling under the heat or under a load
- Acid-proof, alkali-proof
- Defacement : no trace of scratches
- c. Glass fiber reinforced plastic bathtubs

<Qualifications>

- Deformaties on the apron side : less than 10 mm in center
- Boiling proof : no crack, foam, color-change on the surface
- Load proof : no crack

- Leaking test : leaking amount per hour A test : less than 0.03 lit.

B & C test: less than 0.3 lit.

- filth proof : filth recovery rate over 85%

- deformaties when filled with water: less than 1 mm on the bottom less than 2 mm on the upper side

- sand bag falling shock test : no cracks

- Barcol solidity: over 30 - hydrating rate: less than 0.5%

- surface : no cracks, foam or scratches

(5) Tariff Schedule

<Table 2-26> Tariff Schedule for the Importation of Sanitary Fixtures and Bathroom Kits

	1990	1991	1992	1993
Plastic	13%	11%	9%	8%
Ceramic	16%	13%	10%	8%
Aluminium	13%	11%	9%	8%
Iron or Steel	16%	13%	10%	8%

Source : Tariff Schedules of Korea, 1989, Korea Customs Research Institute

(6) Distribution Channel

Mid-small size companies, and regular consumers are having difficulty obtaining sanitary wares since major developers deal directly with the producers to assure their supply. To make things worse, payments are made by draft notes with 3 or 4 month maturity dates which drops the cash flow.

Most of these products are distributed through direct or indirect agents to end-users. 85% of these products are purchased by major developers, and 10% by medium-small developers. Regular consumers are estimated to comsume only 5% of the total demand.

Leaking test: leaking amount per hour A test: less than 0.03 lit.

B & C test : less than 0.2 lit.

- filth proof : filth recovery rate over 85% deformaties when filled with water :
 less than 1 mm on the bottom
 less than 2 mm on the upper side
 - sand bag falling shock test : no cracks

eg levo : Alibites 1001gg

surface : no cracks, foam or scratches.

(5) Tariff Schedule

<Table 1-26> Tariff Schedule for the
 Importation of
 Sanitary Fixtures and Bathroom Kits

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3. Gypsum Board

(1) Market Outlook

Byucksan Corporation, the pioneer of the gypsum board industry in the Korean market, first introduced Korean made gypsum materials a decade ago. Byucksan started with a factory in Jinhae with a capacity of 12 million square meters and successfully managed to expand its capacity to over 32 million square meters with a market share of 90% in 1987.

However, the prosperity offered its major competitor, Keumkang Ltd., a major opportunity and now Keumkang holds a larger share in the market. Keumkang has surpassed Byucksan in various insulating materials by aggressive investing in research & development.

Nowadays, the gypsum board market is facing a crisis of over supplying due to heavy competition. As an alternative Byucksan is trying to penetrate new overseas markets while Keumkang is seeking to create new products.

Since the primary material of gypsum is a by-product of chemical fertilizers, more than a sufficient supply is possible. The 7 mm standard gypsum board is being replaced with the 9 mm standard from early 1990. The estimated demand for 1990 is (9 mm gypsum boards alone) 36.63 million square feet amounting to over US\$ 43.13 million. Therefore, if these major rivals develop a more improved or innovative item, the future growth of this industry will accelerate.

Two big business firms - KEUMKANG and BYUCKSAN - are dominating the market, especially in gypsum boards. Most of the asbestos boards are imported from Canada and South Africa, and the demand is steady so far. However, within 10 years, new material should replace the demand and the use of asbestos will be restrained. Moreover, tariff rates against asbestos material tend to go up, making the condition worse. So, a new material that can be used as an alternative to asbestos may be profitable in the long run.

The import market of gypsum boards which was dominated by the U.S.A. with a market share of 84.4% in 1988 became diversified and reduced to US\$ 356 thousand in 1989, a

(1) Market Outlook

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However, the prosperity offered its major competitor, Keumkang Ltd., a major opportunity and now Keumkang holds a larger share in the market. Keumkang has surpassed Byucksan in various insulating materials by aggressive investing in research & development.

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decrease of 54.3% while exports increased 5.5% by US\$ 1,677 thousand.

In 1989, the U.S.A., Japan and Sweaden controlled the Korean import market with the market share of 33.1%, 31.6% and 31.3%, respectively. In particular, Sweden has appeared in the market since 1989 and in very competitive to Korea's two larger trade partners in most fields - the U.S.A. and Japan. However, the demand for gypsum boards is fully supplied by local manufacturers, and it is expected that the import will decrease more on less for years to come.

<Table 2-27> Export and Import of Gypsum Board

	Yex		558	(Unit : US\$)
d. Su	Export	.988 Import	Export	1989 Import
Japan R.China Malaya U.S.A. W/G Bahrein Sweden Others Total	42,380 1,002,671 282,771 - 102,214 - 160,007 1,590,043	64,392 - - 657,782 53,122 - 4,120 779,416	33,260 1,127,344 279,564 - 36,195 - 200,775 1,677,138	112,633 - 117,868 - 111,436 14,148 356,085

Source: Statistical Yearbook of Foreign Trade, 1988 & 1989, Korean Customs Administration

(2) Major domestic manufacturers

a. Keumkang Ltd.

Tel: (02) 543-2101 Tlx: KOCHEM K26356 Fax: (02) 543-8214

b. Byucksan Corporation

Tel: (051) 522-5512/4

Tlx: K52443

Fax: (051) 526-5101

decrease of 54.3% while exports increased 5.5% by USS

In 1989, the U.S.A., Japan and Sweaden controlled the Korean import market with the market share of 33.1%; it is and 31.3%, respectively. In particular, Sweden has appeared in the market since 1989 and in very competitive to Korea's two larger trade partners in most fields - the U.S.A. and Japan. However, the demand for gypsum boards is fully supplied by local manufacturers, and it is expected that the import will decrease more on less for years to come.

<Table 2-27> Export and Import of Gypsum Board

Source : Statistical Yearbook of Foreign Trade, 1988 g

(2) Major domestic manufacturers

- Tel: (02) 543-2101 Tix: KOCHEM K26356 Fax: (02) 543-2014
- 0. Byucksan Corporation Tel: (051) 522-5512/4 Tlx: K52443 Fax: (051) 526-5101

(3) Import agencies

a. Supplier : Onoda Cement (Japan) Agent : Cheol Kun Co., Ltd.

Tel: (02) 273-1227/8 Tlx: CKSTAR K22897 Fax: (02) 273-5568

b. Product : gypsum wall board and related products Supplier : National Gypsum (USA)

Agent : Dongsuh Corp.

Tel: (02) 732-1331/3 Tlx: EASWER K32106

c. Supplier: Rokbest distributing (USA)

Agent : Sam Ho Trading Corp. Tel: (02) 778-0451 Fax: (02) 756-0695

d. Supplier : Amat Int'l (USA) Agent : Joung Wook Co.

Tel: (02) 548-3947/9 Fax: (02) 540-1841

e. Supplier : Kyoritsu ceramic materials (Japan)
Agent : Sanil Moolsan Co.

Tel: (02) 277-1296/8 Tlx: SANIC K22259 Fax: (02) 272-1160

f. Supplier : Int'l Walli (USA)

Agent : Int'l Walli Co., Lyd.

Tel: (02) 566-8185/6

Tlx : K32356 Fax : (02) 553-9247

(4) KS (Korea Industrial Standard) Specifications

<Qualifications> - dimensions and allowables

the the the	ick -ness	thic		owables width	length	weigh	rt (sq.m)
gradel incombustible	12 15		0.5	-3 -3			- 11.4 - 12.0

(3) Import agencies

a. Supplier : Onoda Cement (Japan)
Agent : Cheol Kun Co., Ltd.

Tel: (02) 273-1227/8 Tlx: CESTAR K22897 Fax: (02) 273-5568

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Tel: (02) 732-1331/3

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f. Supplier : Int'l Walli (USA)

Agent : Int'l Walli Co., Lyd

Tel : (02) 566-8185/6

T1x: K32356

(4) KS (Korea Industrial Standard) Specifications

<Qualifications>
- dimensions and allowables

thick a allowables weight -ness thickness width length (kg/sq.m)

Gradel incombustible 12 4-0.5 -3 +3 9.6 - 1104

19 +- 0.5 -- +2 10.5 -- 12.0

grade 2 i	ncombustible		+- 0.5 +- 0.5	-3 -3		3 -	
thickness	deflection-c	destruct	ion inco	ombustib grade	le heat- (sq.m*	resis	t.
9 12 15	over 40 over 52 over 70		1	2 or 2 1	over	0.05 0.07 0.08	

(5) Tariff Schedule

1993
1000
8%

Source: Tariff Schedules of Korea, 1989, Korea Customs Research Institute

4. Carpet and Flooring Materials

(1) Market Outlook

Flooring materials mainly concern wool or textile materials, vinyl flooring seats and tiles, wood flooring, poly urethane flooring materials and steel & aluminium flooring materials. However, in this research only carpets will be taken into consideration due to a significant level of difficulty in obtaining information and sources.

In 1988, the growth potential of the carpet industry reached its peak, but the demand started to drop fast and the chaotic import of carpets from many countries dominated the market.

Companies which had predicted a sharp increase in demand, based on higher household incomes, invested heavily in factory expansion, thus exacerbating the situation. The

(5) Tariff Schedule

<Table 2-28> Tariff Schedule for the Importation of Gypsum Roard

Sourde : Tariff Schedules of Korea, 1989, Korea Customs Research Institute

Carpet and Flooring Materials

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Companies which had predicted a sharp increase in demand, based on higher household incomes, invested beavily in factory expansion, thus exacerbating the situation. The

annual carpet market amounted US\$ 72 million in 1988, but, dropped drastically in 1989. The industry is capable of producing 1,500 million square meters whereas the demand is no more than 650 million, or 40% of total capacity.

Therefore, companies are determined to increase their market share. For instance, Hanil Synthetic Fiber Ind. Co. is trying to concentrate on wool carpets and has placed an order for one of the latest machines from Belgium, while Cheil Wool Textile Co. is attemting a different target segment by improving the quality of its carpets.

According to the Korean Industrial Advancement Association, after a comparison test of both Korean and foreign products, the Korean carpets were more or less better or at least the same concerning appearance, compression elasticity, etc.

10001			(Unit : 1	JS\$ '000)
		988	198	39
E.S.A.	Export	Import	Export	Import
Carpets and other		357	12/10/10	
Textile Floor Co	verings			
Canada	2,071	83	3,098	60
Japan	4,461	652	3,243	645
U.S.A.	6,618	8,105	5,440	4,891
R.China	- 284	- 287	787	243
Hongkong	269	965	268	1,118
Pakistan		-	-,132	150
Singapore	-	-	1,266	63
Kuwait	2,960	- 313	÷,529	- 230
Belgium	184	4,236	144	8,293
France	- 201	÷,603	92	108
Nethlds	5,075	-	6	162
W/G	-	-	167	277
Saudi-A.	9,006	37	6,354	18
U.K.	3-124	1,908	13	1,362
U.A.E.	5-497	-	1,686	1
India	-	-	-,173	198
Others	5,134	2,506	1,843	5,048
Total	30,703	18,492	24,407	22,637

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Table 2-29> Export and Import of
Garpets and Flooring Materials

Vinyl or Plasti	C				
Canada	44	129	26	107	
Japan	7,614	3,142	7,997	197	
U.S.A.	1,031	3,160	393	2,128	
R.China	82	351	589	2,340	
Hongkong	21,245	2	12,911	272	
Singapore	2,811		2,673	5	
Pakistan	1,057	_	1,106	44	
Nethlds		_			
France	284	287	1,280	10	
W/G		207	680	606	
Luxmbrg	_		965	186	
Sweden	2,762	212	2.500	241	
Saudi-A.	4,857	- 212	2,529	230	
U.K.	201	695	2,663.	-	
U.A.E.	5,075	095	242	570	
Sudan	5,075		2,270	-	
N. Yemen	3,124		1,744	-	
Nigeria		-	611	-	
Austral.	5,437	-	4,342	-	
Others	12 070		1,173	-	
Total	13,972	410	13,169	155	
	69,596	8,388	57,363	6,984	
Total					
Canada	2,115	212	3,124		
Japan	12,075	3,794	11 240	257	
U.S.A.	7,649	11,265	11,240	2,773	
R.China	82	351	5,833	7,231	
Hongkong	21,514	967	1,376	515	
Singapore	2,811	-	13,179	1,123	
Pakistan	1,057		3,939	107	
Kuwait	2,960		1,106	150	
Belgium	184	4,236	7.44		
France	284	287	144	8,293	
Nethlds	204	201	772	714	
W/G	(02) 371-1		1,286	172	
Luxmbrg	021 253-03		1,132	463	
Sweden	2762	- 010		241	
	2,762	212	2,529	230	
Saudi-A.	13,863	37	9,017	18	
U.K.	201	2,603	255	1,932	
U.A.E.	5,075		3,956	1	
India	-	-	-	198	
Sudan	- 1	-	1,744	-	
N. Yemen	3,124	-	611	-	
Nigeria	5,437	-	4,342	-	
Austral.	-	-	1,173	-	
Others	19,106	2,916	15,012	5,203	
Grand Total	100,299	26,880	81,770	29,621	

Canada				
U.S.A. 1,031 3,150 395 2,340 Rochina 82 3272 Rochina 82 32,445 83 84,445 8				
U.S.A. 1,031 3,150 395 2,340 Rochina 82 3272 Rochina 82 32,445 83 84,445 8				
## Singapore 21,245 2 12,911 5 Pakistan 1,007 - 1,106 - Pakistan 1,007 - 1,106 - Prance 284 287 680 606 Widehids 965 186 Widehids 965 186 Widehids 965 186 Widehids 965 186 Saudi-A. 4,857 - 2,659 230 U.K. 201 695 242 570 U.K. 201 695 242 570 U.K. 201 695 242 570 Wigeria 5,437 - 1,744 - 1,7				
## Singapore 21,245 2 12,911 5 Pakistan 1,007 - 1,106 - Pakistan 1,007 - 1,106 - Prance 284 287 680 606 Widehids 965 186 Widehids 965 186 Widehids 965 186 Widehids 965 186 Saudi-A. 4,857 - 2,659 230 U.K. 201 695 242 570 U.K. 201 695 242 570 U.K. 201 695 242 570 Wigeria 5,437 - 1,744 - 1,7				
Strappore 2,811 .				
Nethids				
Nethids				
France 284 287 680 606 W/G				
Luxmbrg				
Luxmbrg				
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The import market for carpets and flooring materials of textile and vinyl or plastic has expanded from US\$ 22.9 million in 1988 to US\$ 29.6 million in 1989, an increase of 10.2%. Four countries - Belgium, the U.S.A., Japan and the U.K. dominated the import market with shares of 28%, 24.4%, 9.3% and 6.5% in 1989, respectively. However, in comparison with the result during 1988-1989, it is only Belgium which successfully enlarged its market in Korea, recording an increase rate of 95.8%, while the U.S.A., Japan and U.K. decreased at the rate of 35.8%, 26.9% and 25.8%, respectively.

(2) Major Domestic Manufacturers

- a. Carpets (wool or textile materials)
- Hanil Synthetic Fiber Ind. Co., Ltd. 222 YangDok Dong, Masan, KyungSang Nam Do Tel: (0551) 95-1131 Tlx: HANILCO K24284 Fax: (02) 738-5505
- Kohap Ltd.
 89-4 Kohap Bldg. KyungWoon Dong, Chongro Ku,
 Seoul, Korea
 Tel: (02) 733-1122
 Fax: (02) 733-3064
 Tlx: KOHAP K27524
- Cheil Wool Textile Co., Ltd.
 250 TaePyungro 2 ga, Chung Ku, Seoul
 Tel: (02) 751-2114 Tlx: GOLDTEX K27503
 Fax: (02) 751-3555
- Tong Yang Nylon Co., Ltd. 21-1 Seosomoon Dong Chung Ku, Seoul Tel: (02) 771-13 Tlx: TOPSTAR K23400 Fax: (02) 753-0116
- b. Vinyl flooring seats and tiles
- Lucky Ltd.
 20 Yoido Dong, Yungdungpo Ku, Seoul
 Tel: (02) 787-1114 Tlx: MCKYSL K224235
 Fax: (02) 787-2038
- Korea Pacific Chemical Corp. Hyunam Bldg. Jangkyo Dong, Chung Ku, Seoul Tel: (02) 729-2700 Fax: (02) 729-2997

The import market for campets and flooring materials of textile and vinyl or plastic has expanded from USS 22.9 million in 1988 to US\$ 28.6 million in 1989, an increase of 10.2% four countries - Belgium, the U.S.A., Japan and the U.K. dominated the import market with shares of 28%, 24.4%, 9.3% and 6.5% in 1989, respectively. However, in comparison with the result during 1985-1989, it is only Belgium which successfully enlarged its market in Korea, recording an increase rate of 95.8%, while the U.S.A., Japan and U.K. decreased at the rate of 15.8%, using the 26.9% and 25.8%, respectively.

(2) Major Domestic Manufacturers

a. Carpets (wool or textile materials)

Hamil Synthetic Fiber Ind. Co., Ltd. 222 YangDok Dong, Masan, KyungSang Nam Do Tel: (0551) 95-1131 Tlx: HANILOO KZAZSA Fax: (02) 739-5505

Kohap Ltd.
89-4 Kohap Bldg, KyungWoon Dong, Chongro Ku,
Seoul, Korea
Tel: (02) 733-1122 Tix: KOHAP K27524
Tax: (02) 733-1066

- Chell Wool Textile Co., itd.
250 TaeFyungro 2 ga, Chung Ku, Seoul.
Tel : (02) 751-2114 Tlx : GOLDTEN K27803
Fax : (02) 751-3556

Tong Yang Wylon Co., Etd.

21-1 Sergomoon Dong Chung Nu., Seoul
Tel: (02) 771-13 Tlx: TOPETAR K23450
28x: (02) 753-0116

b. Vinyl flooring seate and tiles

Korea Pacific Chemical Corp.

Hyunam Eldg. Jangkye Doog. Chure Ko. Secul
Tel: (02) 729-2300 Fax: (02) 729-2997

- c. Wood flooring
- Oriental Lumber Inc. Co., Ltd. 2-45 Mansuk Dong, Chung Ku, Inchon Tel: (032) 763-1321/4
- d. Poly urethane flooring materials
- Kolon Petrochemical Co., Ltd.
 45 MooKyo Dong, Chung Ku, Seoul
 Tel: (02) 777-4511, Tlx: KOLON K23225
 Fax: (02) 757-4750
- Saegye Industrial Co., Ltd. 171 Dangju Dong, Chongro Ku, Seoul Tel. (02) 737-5521
- Song Wonn Industrial Co., Ltd. 143-4 Hweihyun Dong 1 ga, Chung Ku, Seoul Tel. (02) 778-0081
- e. Steel and aluminium flooring materials
- Daehyun Total Intelligent Co. 239-10 Shipjung 1 Dong, Puk Ku, Inchon Tel: (032) 433-8816 Fax: (032) 423-7512

(3) Import Agencies

- Wood Flooring and Carpeting

a. Product : wood flooring material

Supplier : EMA Overseas (USA) & SAKATA (JAPAN)

Agent : Youman Ind. Co., Ltd.
Tel : (02) 738-4371
Tlx : YOUMAN K26605
Fax : (02) 738-2145

b. Product : wood construction material

Supplier : Boxer Industrial Supplies (West Germany)

Agent : Ko Am Moolsan Co., Ltd. Tel : (02)738-9785/6

Tlx: KOAMCO K32195 Fax: (02) 865-0015

- C. Wood flooring
- Oriental Lumber Inc. Co., Ltd. 2-45 Mansuk Dong, Chung Ku, Inchon Tel: (032) 763-1321/4
 - d. Poly urethane flooring materials
- Kolon Petrochemical Cc., Ltd.
 45 MooKyo Dong, Chung Ku, Segul
 Tel: (02) 777-4511, Tlx: KOLON K23225
 Fax: (02) 757-4750
 - Saegye Industrial Co., Ltd. 171 Dangju Dong, Chongro Ku, Seoul Tel. (02) 737-5521
 - Song Wonn Industrial Co., Ltd. 143-4 Hweihyun Dong 1 ga, Chung Ku, Seoul Tel. (02) 778-0081
 - e. Steel and aluminium flooring materials
- Daehyun Total Intelligent Co.
 239-10 Shipjung 1 Dong, Puk Ku, Inchon
 Tel: (032) 433-8816 Fax: (012) 432-7513
 - (3) Import Adendies
 - Wood Flooring and Carpeting
- Supplier: RMA Overseas (USA) & SAKATA (JAPAN)
 Agent: Youman Ind. Co., Etd.
 Tel: (G2) 738-4371
 Tix: YOUMAN K26605
 Fax: (G2) 738-2145
- b. Product : wood construction material
 Supplier : Boxer Industrial Supplies (West Germany)
 Agent : Ko Am Mowalsan Co., Ltd.
 Tel : (02)738-9785/6
 Tlx : KOAMCO K32195
 Fax : (02) 865-0015

c. Product : wooden floor boards

Supplier: Hanshin Trading Co. (Hong Kong)

Agent : Ducksoo Lumber Co., Ltd.

Tel: (032) 73-7511 Tlx: DUCKSOO K29643

d. Product : carpet

Supplier : Ahmad Din (Africa) Agent : Nine Light & Co.

Tel: (02) 784-1801 Tlx: NINUTE K22856 Fax: (02) 784-6558

e. Product : carpet

Supplier : Armstrong (USA)

Agent : I & L Trading Co., Ltd. Tel: (02) 549-1651/2 Tlx : LEECO K33439

Fax: (02) 547-7650

f. Product : carpet

Supplier: Brintons (UK) & Costa Int'l (HK)

: Younghan Trading Co. Agent Tel: (02) 590-6681 Tlx : SELKOR K22223

Fax: (02) 599-8089

g. Product : carpet

Supplier: PVBA Feys-Standaert (Belgium)

Agent : Seongdo Mercantile Corp.

Tel: (02) 753-2238/9 Tlx: KIMSENG K29914 Fax: (02) 756-1068

h. Product : carpet

Supplier: Select Merchandise (HK)

Agent : Crafton Trading

Tel: (02) 548-1425 Tlx : CRAFTON K22255 Fax: (02) 540-2644

i. Product : carpet

Supplier : Prado NV (Belgium)

Agent : South Spring Int'l Co.; Ltd.

Tel: (02) 549-6701 Tlx: SSICO K27743

c. Product : wooden floor boards
Supplier : Hanshin Trading Co. (Hong Kong)
Agent : Ducksoo Lumber Co., Ltd.
Tel : (032) 73-7511

Clx : DUCKSOO K29643

A. Product : carpet
Supplier : Ahmad Din (Africa)
Agent : Nine Light & Co.
Tel : (02) 784-1801
Tlx : NINUTE K22856
Fax : (02) 784-6558

Product : carpet
Supplier : Armstrong (USA)
Agent : I & L Trading Co., Ltd.
Tel : (02) 549-1651/2
Tlx : LEECO K33439
Fax : (02) 547-7650

Supplier: Brintons (UK) & Costa Int'l (HK)
Agent: Younghan Trading Co.
Tel: (02) 590-6681
Tlx: SELKOR K22223
Fax: (02) 599-8089

g. Product : carpat
 Supplier : PVBA Feys-Standaert (Belgium)
 Agent : Seongdo Mercantile Corp.
 Tel : (02) 753-2238/9
 TIX : KIMSENG K29914

h. Product : carpet
Supplier : Select Merchandise (HK)
Agent : Crafton Trading
Tel : (02) 548-1425
TIX : CRAFTON K22255
Fax : (02) 540-2644

i. Product : carpet
Supplier : Prado WV (Belgium)
Agent : South Spring Int'l Co.: Ltd.
Tel: (62) 549-6701
Tlx: SSICO K27743

j. Product : carpet

Supplier : Sunrise Bandarkaran (Iran)

Agent : Sunrise Trading Co. Tel: (02) 549-7341 Fax: (02) 549-7340

k. Product : carpet

Supplier: Rokbest distributing (USA)

Agent : Sam Ho Trading Corp.

Tel: (02) 778-0451 Fax: (02) 756-0695

1. Product : tile carpet

Supplier : Hayakawa (Japan)
Agent : Bora Ind. Co.

Tel: (02) 802-2241/2 Fax: (02) 802-7783

m. Supplier : Rossini (Belgium) Agent : Jin Heung Corp.

Tel: (02) 540-1588 Tlx: UTCLTD K28995 Fax: (02) 540-4997

n. Product : hard wood maple strip flooring

Supplier: Robbins Int'l (USA) Agent : Hong Sung Int'l Corp.

Tel: (02) 755-7266/8 Tlx: K23231

Fax: (02) 755-7269

o. Product : sheet vinyl flooring Supplier : Unicon Int'l (USA)
Agent : Unicon Int'l Ltd.

Tel: (02) 583-9721 Tlx : ASIATOP K26365 Fax: (02) 553-4650

- Ceiling Systems

a. Product : wood ceiling Supplier : Lindbase (UK)

Agent : Co-prosperity Co., Ltd. Tel : (02) 779-3811/9

Tlx : COPROS K22620 Fax: (02) 756-5208

f. Product : carpet
Supplier : Sunrise Bandarkaran (Iran)
Agent : Sunrise Trading Co.
Tel : (02) 549-7241
Fax : (02) 549-7340
K. Product : carpet

Supplier: Rokbest distributing (USA)
Agent: Sam Ho Trading Corp.
Tel: (02) 778-0451
Pax: (02) 756-0695

1. Product : tile carpet
Supplier : Hayakawa (Japan)
Agent : Bora Ind. Co.
Tel : (02) 802-2241/2
Fax : (02) 802-2241/2

m. Supplier : Rossini (Beigium)
Agent : Jin Heung Corp.
Tel : (02) 540-1588
Tlx : UTCLTD X28995
Fax : (02) 540-4997

n. Product : hard wood maple strip flooring Supplier : Robbins Int'l (USA)
Agent : Hong Sung Int'l Corp.
Tel : (02) 755-7266/8
Tix : K23231

O. Product : sheet vinyl flooring
Supplier : Unicon Intil (USA)
Agent : Unicon Intil Itq
Tel. : (02) 359-375
Til : ANTATOP X84365
FAX : (02) 653-656

celling systems

Product : wood celling
Supplier : Lindberg (UK)
Agent : co-progressy Co., Let
Tel : (CO) = TO-3812/5
Tix : COPECO 821520
FEX : (CA) | Don-mood

b. Product : acoustical ceiling tile/panel

Supplier : Jim Walter (USA) Agent : Dongsuh Corp.

Tel: (02) 732-1331/3 Tlx : EASWEST K32106

- (4) KS (Korea Industrial Standard) Specifications
 - a. Flooring board

<Qualifications>
- surface
 knot : max. 3, ave. diameter 10 mm or less
 worm hole : max. 5, ave. diameter 2 mm or less

hydrating rate: less than 15% bending, twist : satisfactory

split : satisfactory

cross grain or slope of grain : satisfactory

b. Floor frame treated with preservatives by pressure process

<Qualifications>

- wane : less than 10% of width and thickness less than 15% of the length

- worm hole: max. 5 per 1 m. size less than 2mm each

- saturation : saturation of preservatives into the wood over 80%

- hydrating quantity: CCA: over 3.5 kg/cube m : PF : over 6 kg/cube m

c. Flooring board

<Qualifications>

	grade 1	grade 2
knots (per one side 2.7 m) br bending degree holes hydrating rate	road-leaf max. 1 eedle-leaf max. 2 less than 0.1% no max.	no

d. Flooring board treated with preservatives by pressure process

<Qualifications>
Same with the above-mentioned flooring board

(5) Tariff Schedule

<table 2-30=""></table>	Tariff	Schedule	for	Carnet	Importation
				Poc	TIMPOT CALTON

		carpet	Importati	on
	1990	1991	1992	1993
Wool, Fine Animal Hair, or other Textile Materials Vinyl or Plastic	16% 13%	13% 11%	10%	8% 8%

Source: Tariff Schedules of Korea, 1989, Korea Customs Research Institute d. Flooring board treated with preservatives by pressure process

<Qualifications>
Same with the above-mentioned flooring board

(5) Tariff Schedule

Chapter III.PROMOTION

III.1. Trade Fairs

III.2. Advertising

III.3. Related Economic Organizations

Chapter III. PROMOTION

III.1. Trade Fairs

III.2. Advertising

III.1. Related Economic Organizations

III.1. Trade Fairs

The biggest exhibition venue in Korea, the Korea Exhibition Center(KOEX), is located in the Chamsil area, Seoul, which is under the authority of the Korea Foreign Trade Association (KFTA). Various kinds of trade fairs are organized and exhibition halls are rented for special occasions by KOEX. In addition, they have permanent exhibition spaces available to both exporters and importers who wish to exhibit for the long term. KOEX is adjacent to the Korea World Trade Center, a 52-story building and thus creating the center of foreign trade activities in Korea.

The already-organized trade fair schedule and information on organizers for the related industries is as follows:

PERIOD	NAME	&	ORGANIZER
	~10000	-	OTTOTALTUTAL

9th - 14th, Mar. International Housing Material Show 1990 Joong-Ang Daily News SVP Tel: (02) 752-7741/3

Fax: (02) 778-2038

23rd - 28th, Mar. KyungHyang Housing Fair '90 1990 The KyungHyang Daily News Tel: (02) 730-5151

28th Mar. Sintex '90 (Seoul Int'l Total Interior 2nd Apr. 1990 Exhibition)

Korea Exhibition center (KOEX)

Tel: (02) 551-1123/4 Fax: (02) 555-7414 Tlx: KOEXCEN K24594

4th - 8th, Jun. Sikitchen '90 (Seoul Int'l Kitchen and 1990 Sanitary Goods Exhibition)

> KOEX Tel: (02) 551-1114

Fax: (02) 555-7414

2nd - 6th, Jul. KISS '90 (The 8th Int'l Safety and 1990 Security Exhibition)

Korea Industrial Safety Corporation

Tel: (02) 797-5996 Fax: (02) 795-4872

31st Aug. - SIBUILD '90 (The 3rd Seoul Int'l Build-4th Sep. 1990 ing Industry Fair)
'90 Korea Shop (the 3rd Seoul Int'l
Shop System & Store Automation Show)
Joong-Ang Daily News SVP
Tel: (02) 752-7741/3
Fax: (02) 778-2038

Most of the operations during the exhibition will be dealt with by the organizer for the participating companies. These fairs are regularly-based ones, thus they are pretty well organized and publicized.

Making use of the fairs has two advantages in general. First of all, it is the best opportunity for a foreign company who is attempting to do business in the Korean market for the first time to find a decent agent. Moreover, it will provide a chance for Canada to become familliar with the general public and have an advertising effect. In conclusion, participation in these fairs is highly recommendable.

For the long term, it is also recommendable to get permanent exhibition booth in KOEX.

list Aug. --

Sibulib '90 (The 1rd Secul Int'l Building industry Fair)
'90 Korea Shop (the 1rd Secul Int')
Shop System & Store Automation Show)
Cong-Ang Daily News Syp
Tel : (02) 752-7741/3
Fax : (03) 778-2038

Most of the operations during the exhibition will be dealt with by the organizer for the participating companies. These fairs are regularly-based ones, thus they are pretty well organized and publicized.

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For the long term, it is also recommendable to get a permanent exhibition booth in ROEY.

III.2. Advertising

There are major newpapers, economic periodicals and construction related publications available for this purpose. Among them, construction related weekly papers and the Korea Trade News which is published by KOTRA(Korea Trade Promotion Corporation) are recommendable. These forms are mainly targeted to business people interested in construction and other related materials.

- Construction related newspaper

The Daily Construction News

Tel: (02) 547-6101 Fax: (02) 549-7848

The Korea Construction News (Weekly)

Tel: (02) 554-0661/2 Fax: (02) 554-0672

Construction Economic Weekly Newspaper Tel: (02) 778-8095/6

The Korea Trade News Tel: (02) 454-2671

More detailed and specialized advertisements and coverage can be possible through magazines.

Monthly Home Interior Tel: (02) 536-2261 / 599-2894

The Construction Official Report
The Construction and Materials (Monthly)
Tel: (02) 717-1261/3

Monthly Housing Information Tel: (02) 546-4902

The Housing Culture (Monthly) Tel: (02) 467-8882

Monthly Design House Tel: (02) 275-7881/4 There are major newpapers, economic periodicals and construction related publications available for this purpose, Among them, construction related weekly papers and the Korea Frade News which is published by KOTRA(Korea Trade Promotion Corporation) are recommendable. These forms are mainly targeted to business people interested in construction and other related materials.

Construction related newspaper

The Daily Construction News Tel: (02) 547-5101 Fax : (02) 549-7848

The Korea Construction News (Wackly)
Tel: (02) 554-0661/2
Fax: (02) 554-0672

Construction Economic Weekly Newspaper Tel: (62) 778-869576

> The Moree Trade Nevs Tel: (02) 454-2671

More detailed and specialized advertisements and coverage can be possible through magazines

Monthly Home Interior Tel: (02) 836-2261 / 829-2884

The Construction Official Report.
The Construction and Materials (Monthly)
Tel: (02) 717-1261/3

Monthly Housing Information Tel: (02) Siewesog

The Housing Culture (Nonthly)

Monthly Design Homse Tel i (02) 275-788744

III.3. Related Economic Organizations

Construction Association of Korea

Add: 71-23, Nonhyun-dong, Kangnam-gu, Seoul Tel: (02) 547-6101

Cbl : CONASKO SEOUL

Function - Support cooperation of the construction related businessmen

- Improve construction related systems

- Promote to develop construction technology

The Overseas Construction Association of Korea

Add: 60-1, Chungmuro 3-ga, Chung-gu, Seoul Tel: (02) 274-1611

Cbl : OCAOKOR SEOUL Tlx: OCAOKOR K26336

Function - Support to receive overseas orders

- Information collecting

- Policy study

- Review profitability on each project - Manage funds for overseas construction

promotion
- International cooperation with foreign construction business

- Contract permission

- Manage carrying in and out of construction equipment

- Permit exemption of the test for export of equipments

Korea Institute of Registered Architects

Add.: 1603-55, Socho-dong, Socho-gu, Seoul

Tel: (02) 581-5711

Function - Survey and research on construction in general and activities of architects

- Exhibition of members' products and material

- Promotes contest of construction designs - Participation in international construc-

tion organization

Korea Fire Fighting Equipment Industry Cooperative

Add: 16-2, Youido-dong, Yongdungpo-gu, Seoul Tel: (02) 785-4121

Korea Lumber Industry Cooperative

Add.: 44-35, Youido-dong, Yongdungpo-gu, Seoul

Tel: (02) 783-0657

Korea Plywood Industries Association

Add.: 10-1, Hoehyon-dong 2ga, Chung-gu, Seoul

Tel: (02) 755-6207

Korea Reclaimed Plastic Industry Cooperative

Add.: 94-121, Yongdungpo-dong, Yongdungpo-gu, Seoul

Tel: (02) 677-0331

Korea Refractory Industrial Cooperative

Add.: 53-20, Taehyon-dong, Sodaemun-gu, Seoul

Tel: (02) 362-6765

Cbl : KRICO

Korea Surface Active Agent Industry Cooperative Add.: 1351-3, Shingil-dong, Yongdungpo-gu, Seoul

Tel: (02) 842-0747

Korean Ceramic Industry Association

Add.: 53-20, Taehyon-dong, Sodaemun-gu, Seoul

Tel: (02) 362-6749

Korea Foreign Trader Association

Add.: 159-1, Samsong-dong, Kangnam-gu, Seoul

Tel: (02) 551-5114 Cbl : KOTRASO SEOUL

Tlx: K24265

Fax: (02) 551-5114

Small & Medium Industry Promotion Corporation

Add.: 27-2, Youido-dong, Yongdungpo-gu, Seoul

Tel: (020 783-9611 Tlx: SMCKO K25542

Korea Land Development Corporation (KLDC) Add: 71-2, Nonhyun-dong, Kangnam-ku, Seoul

Tel: (02) 540-4411

Tlx: K33984

Fax: (02) 544-1944

Korea Institute of Construction Technology (KICT)

Add: 142 Umyun-dong, Socho-ku, Seoul

Tel: (02) 577-4182 Fax: (02) 572-8998

Korea Housing Corporation

Add: 254, Nonhyun-dong, Kangnam-ku, Seoul

Tel: (02) 513-3114 Fax: (02) 545-1854

The Korea Housing Bank

Add: 36-3, Youido-dong, Yongdungpo-ku, Seoul Tel: (02) 784-6611

Fax: (02) 784-6611 Fax: (02) 784-3403 Tlx: KOHOBA K27879

These lists are mainly for reference. Business in Korea, like in other oriental countries, is often dealt with at the bureaucratic level. To get in touch with these associations would surely be beneficial as each organization may have its own program of promoting the specific product, such as a product seminar.

The Korea Housing Bank
Add: 36-3, Youldo-dong, Yongdungpo-ku, Seoul
Tel: (92) 784-5611
Fax: (92) 784-3403
Flx: KOHOBA K27879

These lists are mainly for reference. Business in Korea, like in other oriental countries, is often dealt with at the bureaucratic level. To get in touch with these associations would surely be beneficial as each organization may have its own program of promoting the specific product, such as a product seminar.

Chapter IV. PLAN FOR COMPREHENSIVE DISTRIBUTION CENTER

large as 152,066.8 sq.st. on the ground of 267,769.8 sq.st. The budget planned is 44.1 billion Won (us 5 63.42 million) and the construction is expected to be

CHAPTER IV. PEAN FOR COMPREHENSIVE DISTRIBUTION CENTER

The Ministry of Commerce and Industry has a grand plan for establishing Korea's first Distribution Center in the Metropolitan Area of Seoul which will be equipped with all the necessary facilities for storage, cargo working (loading and unloading), delivery and information.

The Distribution Center plan is to facilitate collectivization of distributors scattered around the downtown area of Seoul into a systemized comprehensive Center in the suburban area.

The center will be located around Dongcheon-Ri, Sooki-Myun, Yongin-Kun and Kyungki-Do. The Center will be as large as 152,066.8 sq.mt. on the ground of 267,769.8 sq.mt. The budget planned is 44.1 billion Won (US \$63.42 million) and the construction is expected to be completed by 1991.

The main functions include collecting cargos of manufactured products along with agricultural & fishery products which are expected to reach 460,000 tons in 1990 and 1,000,000 tons by 1991; handling all the logistical works including storage, processing and delivery, computerizing information regarding logistics; distributing the above mentioned products and organizing the delivery system ac cording to the correct demand information.

The Distribution Center will provide advantages such as price reduction by way of mass purchasing, logistical fee saving through an improved information system which is estimated to be worth 11.7 billion Won (US \$ 13.14 million), effective stock management and the facilitation of various joint projects among the distributors.

The Ministry is planning to select a public organization to take charge of the project. The Ministry will then support the organization by financing it (US\$ 17.26 million for 3 years), making adjustments in urban planning around the site and modifying the related legal procedures.

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The Distribution Center plan is to facilitate collectivization of distributors scattered around the downtown area of Secul into a systemized comprehensive Center in the suburban area.

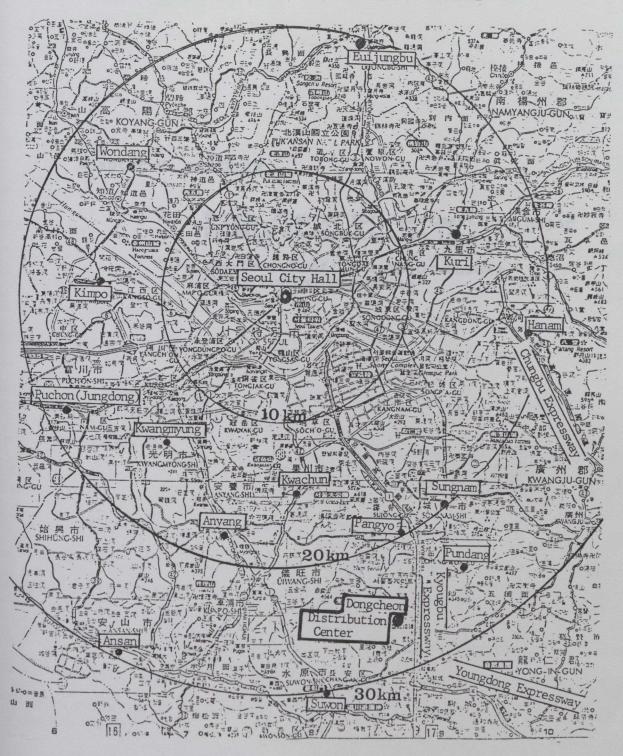
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<Figure 4- 1> Location of Distribution Center



(Rigure 4- 1) Location of Distribution Center



Chapter V. APPENDIX

- V.1. Supply Program for Apartments by Major Private Constructors in 1990
- V.2. End-User Profile: Major Korean Construction Companies

Chapter V. Appendix

V.1. Supply Program for Apartments by Major Private Constructors in 1990

> V.2. End-User Profile: Major Korean Construction Companies

V.1. Supply Program for Apartments by Major Private Constructors in 1990

	4,800	Nam Kwang Engineering	
Constructors	Number of Houses	Constructors	Number of Houses
Hyundai Housing & Industrial Development	18,911	Kyung Nam Enterprise	2,790
Han Yang Construction	18,878	Dong Sung	2,721
Hyundai Engineering & Construction	15,498	Kolon Construction	2,655
Lucky Development	10,891	Dong San Construction & Engineering	2,626
Shindongah Construction	n 8,587	Sam Whan Corporation	2,500
Woo Sung Construction	8,423	Dong A Construction	2,211
Han Kook Kun Up Construction	8,030	Ssang Yong Construction	n 2,092
KwangJu Highway Lines, Construction and Engine	7,165 ering	Sung Jee Construction	2,026
Life Construction	5,972	Kong Yong Construction	1,819
ChongGu Housing, Construction	5,890	Poong Lim Industrial	1,593
Han Il Development	5,815	Sam Hwan Camus	1,250
Dae Lim Industrial	5,466	JungWoo Development	1,215
Sunkyong Engineering & Construction	5,406	Samick Ceramic	1,175
Han Shin Construction	5,238	Sambu Construction	935
Lotte Construction	5,218	Shin Sung Corporation	762
Dong Shin Housing & Construction	5,002	Samick Corporation	684

V.1. Supply Program for Apartments by Major Private Constructors in 1990

	Construction

Kuk Dong Construction	4,810	Keum Kang Construction 536	
Woo Bang Housing Construction	4,800	Nam Kwang Engineering 536 Construction	
Sam Ick Construction	4,682	Kisan Corporation 350	
Samsung Construction	4,417	Kyoung Hyang Construction 310	
DaeWoo Corp.	3,601	Young Poong Construction 270	
Dong Bu Construction	2,840	Il Sin Promotion 258 Construction	
Total	196,854	m-rm- Second 188	. 000

Kuk Dong Construction		

Iston

196,854

2. End-User Profile: Major Korean Construction Companies

Kang Nam General Const. Co., Ltd.
Add.: 355-21 SeoCho-dong, SeoCho-gu, Seoul 135
Telephone: (02)552-0191

Guh Sung Construction Co., Ltd.

Add.: 541 DoHwa-dong, MaPo-gu, Seoul 121

Telephone: (02) 715-3800, 5871/3

Telex: K25990

Fax: (02) 715-7674

Kun Young Co., Ltd.

Add.: 46-3 JamWon-dong, KangNam-gu, Seoul 135

Telephone: (02) 542-2294, 544-8171

Telex: K29136

Fax.: (02) 542-2924

Kyoung Il Enterprise Co., Ltd.

Add.: 62-35 1-ga JangChoon-dong, Jung-gu, Seoul 100

Telephone: (02) 273-2662/7

Kyoung Hyang Construction Co., Ltd.

Add.: 60-3 2-ga ChoongMu-ro, Jung-gu, Seoul 100

Telephone: (02) 776-9681, 777-2217

Telex KYHANG K23436

Kye Ryong Construction Ind. Co., Ltd.

Add.: 168-8 OhRyu-dong, Jung-gu, DaeJon, ChoongNam 300-01

Telephone: (042) 525-1601/14

Fax. : (042) 525-1615

Koryeo Industrial Development Co., Ltd.

Add.: 178 SeJong-ro, JongRo-gu, Seoul 110

Telephone: (02) 737-5221

Ko Hap Construction Co., Ltd.

Add.: 688-17 AhnYang-dong, AhnYang, KyungGi-do 171

Telephone: (0343) 2-2984

Kwang Duk Construction Co., Ltd.

Add.: 228-2 KuWui-dong, SungDong-gu, Seoul 133

Telephone: (02) 444-5041/3, 445-0888

KwangSan Generalization Construction Ltd.

Add.: 751-10 HyoJa-dong, ChoonChun, KangWon-do 200

Telephone: (0361) 53-8371/4

2. End-User Profile : Major Korean Construction Companies

Kang Nam General Const. Co., Ltd. Add.: 355-21 SeoCho-dong, SeoCho-qu, Seoul 135 Telephone: (02)552-0191

Gun Sung Construction Co., Ltd.
Add.; 541 DoHya-dong, Mapo-gu, Seoul 121
Telephone: (02) 715-3800, 5871/3
Telex: K25990
Fax: (02) 715-7674

Kun Young Co., Ltd.
Add.: 46-3 Jamwon-dong, KangNam-qu, Seoul 135
Telephone: (02) 542-2294, 544-8171
Telex: K29136
Fax.: (02) 542-2924

Kyoung Il Enterprise Co., Ltd. Add. : 62-35 1-ga JangChoon-dong, Jung-gu, Seoul 100 Telephone : (62) 273-2562/7

Kyoung Hyang Construction Co., Ltd.
Add.: 56-3 2-ga ChoongMu-ro, Jung-gu, Seoul 100
Telephone: (02) 776-9581, 777-2217
Telex KYHANG K23436

Kye Ryong Construction Ind. Co., Ltd.
Add.: 168-8 OhRyu-dong, Jang-gu, DaeJon, ChoongWam 300-01
Telephone: (042) 525-1601/14
Eax.: (042) 525-1615

Koryeo Industrial Development Co., Ltd. Add. : 178 Selong-ro, JongRo-gu, Secul 110 Telephone : (02) 737-5231

Ko Hap Construction Co., Ltd. Add.: 688-17 AhnYang-dong, AhnYang, KyungGi-do 171 Telephone: (0343) 2-2986

> awang buk Construction Co., Etd. Add.: 228-2 RuWui-dong, SungDong-gu, Seoul 133 Telephone : (02) 446-5041/3, 445-0888

RwangSan Generalization Construction Ltd. 8dd.: 751-10 HyoJa-dong, ChoonChun, KangWon-do 200 Telephone: (0361) 53-8371/4 Kuk Dong Construction Co., Ltd.

Add.: 60-1 3-ga ChoongMoo-ro, Jung-gu, Seoul 100

Telephone: (02) 273-1141

Telex: SHIKCO K2341 Fax.: (02) 273-4719

Eun Sung Construction Co., Ltd.

Add.: 415-1 SunWha-dong, Jung-gu, DaeJun, ChoongNam 300

Telephone: (02) 253-2121/4

Nam Kwang Engineering Construction Co., Ltd.

Add.: 25-15 YouiWui-dong, YoungDengPo-gu, Seoul 150 Telephone: (02) 783-5481 784-8401

Telephone: (02) 783-5481, 784-8401 Telex: K27477, K22607

101ex . R2/4//, R2260/

Narm Yang Construction Co., Ltd.

Add.: 1-1 1-ga EunMam-ro, Dong-gu, KwangJu 500

Telephone: (062) 27-1031/5, 6111/3

Nam Young Construction Ind. Co., Ltd.

Add.: 8-23 JongAm-dong, SungBuk-gu, Seoul 136

Telephone: (02) 913-0639, 8720

Nam Jin Construction Co., Ltd.

Add.: 708-9 SongHa-dong, SongHa, JunNam 501

Telephone: (062) 367-3677/9

Nam Hwa Construction Co., Ltd.

Add.: 138 RooMun-dong, Buk-gu, KwangJu, JunNam 500

Telephone: (062) 363-8881/7

Dae-Neung Construction Co., Ltd.

Add.: 251-2 SungNam-dong, WuiSan, KyungNam 690

Telephone: (0522) 43-1050, 3559

Dae-Lim Industrial Co., Ltd.

Add.: 146-12 SooSong-dong, JoongRo-gu, Seoul 110

Telephone: (02) 730-8221, 9221, 8511, 8181

Telex: DAELIM K23279

Fax.: (02) 733-3664

Dae Choo Construction Co., Ltd.

Add.: 36-9 Nam-dong, Dong-gu, KwangJu, JunNam 500

Telephone: (02) 27-5161/5

Dae Chang Enterprise Co., Ltd.

Add.: 541 5-ga, NamDaeMoon-ro, Jung-gu, Seoul 100

Telephone: (02) 777-5291/7

Telex : DWDEN K24444

Fax. : (02) 777-5291

Kuk Dong Construction Co., Ltd.
Add.: 60-1 3-ga ChooneMoo-ro, Jamg-qu, Secul 100
Telephone: (02) 273-1141
Telex: SHIKCO K2341
Fax:: (02) 273-4719

Eun Sung Construction Co., Ltd. Add.: 415-1 SunWha-dong, Jang-gu, DaeJun, ChoongMam 100 Telephone: (02) 253-2121/4

Nam Kwang Engineering Construction Co., Ltd. Add.: 25-15 YoulWal-dong, YoungDengPo-qu, Seoul 150 Telephone: (02) 781-5481, 784-8401 Telex: K27477, K22607

Narm Yang Construction Co., Itd. Add. : 1-1 1-ga EunMam-ro, Dong-ga, KwangJu 509 Telephone : (062) 27-1031/5, 6111/3

Nam Young Construction Ind. Co., Ltd. Add.: 8-23 JongAm-dong, SungBuk-qu, Seoul 136 Telephone: (03) 913-0639, 8720

Nam Jin Construction Co., Ltd. Add.: 708-9 SongHa-dong, SongHa, JunNam 501 Telephone: (062) 367-3677/9

Nam Hwa Construction Co., Ltd.
Add.: 138 RooMun-dong, Buk-qu, EwangJu, JunNam 500
Telephone: (062) 363-8881/7

Dae-Neung Construction Co., Ltd. Add.: 251-2 SungNam-dong, Wuisan, KyungNam 650 Telephone: (0522) 43-1050, 1559

Dae-Lim Industrial Co., Ltd.
Add.: 146-12 ScoScng-dong, JoongRo-gu, Secul 110
Telephone: (02) 730-8221, 9221, 8511, 8181
Telex: 1 DAELIM K21279
Fax: 1 (02) 733-1664

Dam Choo Construction Co: "Ltd.
Add.: 35-9 Nam-dong, Dong-gu, Kwanglu, JunNam 500
Telephone: (02) 27-5151/5

Dae Chang Enterprise Co., Ltd.
Add.: 541 5-qa, RamDaeMoon-ro, Jung-qu, Secul 100
Telephone: (02) 777-5291/7
Telex: DWDEW K2444
Fax: (02) 777-5291

Tai Han Engineering Fax. Development Corp.
Add.: 58-7 SeoSoMoon-dong, Jung-gu, Seoul 100
Telephone: (02) 778-2280/5
Telex: THANTEX K27302
Fax.: (02) 757-7861

Korea Dredging Corporation Add.: 47-1 3-ga, ShinHeung-dong, Jung-gu, InChon 160 Telephone: (02) 762-3907, 6086

Dae Ho Construction Co., Ltd. Add.: 1339-9 SeoCho-dong, SeoCho-gu, Seoul 135 Telephone: (02) 569-9194/8 Telex: SITOP K26365

Duck Soo Development Co., Ltd. Add.: 777-1 MyounMook-dong, DongDaeMoon-gu, Seoul 130-01 Telephone: (02) 493-8001/10, 423-3151/9

Dong Gwang Construction Co., Ltd. Add.: 42-6 2-dong Seo-gu, KwangJu 500 Telephone: (02) 365-9906/9

Dong San Construction Fax. Engineering Co., Ltd. Add.: 105-7 NonHyun-dong, KangNam-gu, Seoul 135 Telephone: (02) 540-0111 Telex: DONGSAN K26549 Fax.: (02) 676-9913

Dong Sung Co., Ltd.
Add.: 605 SongWon-ri, KunNamMyun, YunSan-ji, ChoongNam 320-12
Telephone: (0415) 2-3595/6

Dong Shin Housing Fax. Construction Co., Ltd. Add.: 694-10 YukSam-dong, KangNam-gu, Seoul 135 Telephone: (02) 562-8164/9

Dong-Ah Construction Ind. Co., Ltd.
Add.: 120-23 SeoSoMoon-dong, Jung-gu, Seoul 100
Telephone: (02) 771-21
Telex: DONG AH K26219
Fax.: (02) 756-9710

Dong Kook Development Co., Ltd. Add.: 1071-4 KwangAhn-dong, Nam-gu, Pusan 608 Telephone: (051) 752-3191/3

Tai Han Engineering Fax. Development Corp.
Add.: 58-7 SeoSoMcon-dong, Jung-gu, Seoul 100
Telephone: (02) 778-2280/5
Telex: THANTEX K27302
Fax.: (02) 757-7861

Korea Dredging Corporation Add.: 47-1 3-ga, ShinHeung-dong, Jung-gu, InChon 160 Telephone: (02) 762-3907, 6086

Dae Ho Construction Co., Ltd.
Add.: 1339-9 Seocho-dong, Seocho-gu, Seoul 135
Telephone: (02) 569-9194/8
Telex: SITOR F26365

Duck Soo Development Co., Ltd.

Add.: 777-1 MyounMook-dong, DangDaeMoon-gu, Seoul 130-01
Telephone: (02) 493-8001/10, 423-3151/9

Dong Gwang Construction Co., Ltd. Add.: 42-6 2-dong Seo-gu, Kwanglu Soo Telephone: (02) 365-9906/9

Dong San Construction Fax. Engineering Co., Ltd. Add.: 105-7 NonHyun-dong, KangNam-gu, Secul 135 Telephone: (02) 540-0111 Telex: DONGSAN K26549 Fax.: (02) 676-9913

Dong Sung Co., Ltd. Add.: 605 SongWon-ri, KunNamMyun, YunSan-ji, ChoongNam 320-12 Telephone: (0415) 2-3595/6

Dong Shin Housing Fax. Construction Co., Itd. Add.: 694-10 YukSam-dong, KangNam-gu, Seoul 135 Telephone: (02) 562-8164/9

Dong-Ah Construction Ind. Co., Ltd.
Add.: 120-23 SepSoMcon-dong, Jung-gu, Seoul 100
Telephone: (02) 771-21
Telex: DONG AH K26219
Fax.: (02) 756-9710

Dong Kook Development Co., Ltd. Add.: 1071-4 KwangAhn-dong, Nam-qu, Pusan 608 Telephone: (051) 752-3191/3 Lucky Development Co., Ltd.

Add.: 35-3 YouWiDo-dong, YoungDeungPo-gu, Seoul 150

Telephone: (02) 783-0021

Telex: LUCON K23327 Fax.: (02) 784-6610

Lotte Construction Co., Ltd. Add.: 339 ShinSa-dong, KangNam-gu, Seoul 135

Telephone: (02) 593-6111, 8111

Telex: LTCONST K26465 Fax. : (02) 593-9155

Myung Do Development Co., Ltd.

Add.: 81-16 YounHee-dong, SeoDaeMoon-gu, Seoul 120

Telephone: (02)323-1351/4

Myungji Construction Inc.

Add.: 58-17 SeoSoMoon-dong, Jung-gu, Seoul 100

Telephone: (02) 753-0281/5, 0287/9

Mi Ryung Construction Co., Ltd.

Add.: 21-9 Cho-dong, Jung-qu, Seoul 100

Telephone: (02) 269-1671 Telex: MIRYUNG K26397

Fax.: (02) 275-3615

Mirim Construction Co., Ltd.

Add.: 548-2 ShinSa-dong, KangNam-gu, Seoul 135

Telephone: (02) 546-7821

Pum Yang Construction Co., Ltd.

Add.: 750-14 BangBae-dong, KangNam-gu, Seoul 135

Telephone: (02)591-0061/4

Telex: PUMKOR K22023

Fax. : (02) 533-8089

Boo Kuk Construction Co., Ltd.

Add.: 107-1 NoGoSan-dong, MaPo-gu, Seoul 121

Telephone: (02) 719-4581

Sam Do Construction Co.

Add.: 14-11 YouWuiDo-dong, YoungDeungPo-gu, Seoul 150

Telephone: (02) 782-7351, 7457

Telex: SAMDO K23215

Sambu Construction Co., Ltd.

Add.: 9-1 NamChang-dong, Jung-gu, Seoul 100

Telephone: (02) 756-3900/29

Telex: SAMBU K28138

Lucky Development Co., Ltd.
Add.: 35-3 YouWiDo-dong, YoungDeungPo-gu, Seoul 150
Telephone: (02) 783-0021
Telex: LUCON K23327
Fax:: (02) 784-6610

Lotte Construction Co., Ltd.
Add.: 339 Shinsa-dong, KangNam-gu, Seoul 135
Pelephone: (02) 593-6111, 8111
Pelex: LTCONST K26465
Fax.: (02) 593-9155

Myung Do Development Ce., Ltd. Add.: 81-16 YounHee-dong, SeoDaeMoon-gu, Seoul 120 Telephone: (02)323-1351/4

Myungji Construction Inc. Add.: 58-17 SeoSoMoon-dong, Jung-gu, Seoul 100 Telephone: (02) 753-0281/5, 0287/9

Mi Ryung Construction Co., Ltd.
Add.: 21-9 Cho-dong, Jung-gu, Seoul 100
Telephone: (02) 269-1671
Telex: MIRYUNG K26387
Fax.: (02) 275-3615

Mirim Construction Co., Ltd. Add. : 548-2 Shinsa-dong, Kangwam-gu, Seoul 135 Telephone : (02) 546-7821

Pum Yang Construction Co., Ltd.
Add.: 750-14 BangBae-dong, KangNam-gu, Seoul 135
Telephone: (02)591-0061/4
Telex: PUMKOR K22023
Fax.: (02) 533-8089

Boo Kuk Construction Co., Ltd. Add.: 107-1 NoGoSan-dong, MaPo-gu, Seoul 121 Telephone: (02) 719-4581

Sam Do Construction Co. Add.: 14-11 YouWulDo-dong, YoungDeungPo-gu, Secul 150 Telephone: (02) 782-7351, 7457

Sambu Construction Co., Ltd.
Add. : 9-1 NamChang-dong, Jung-gu, Seoul 100
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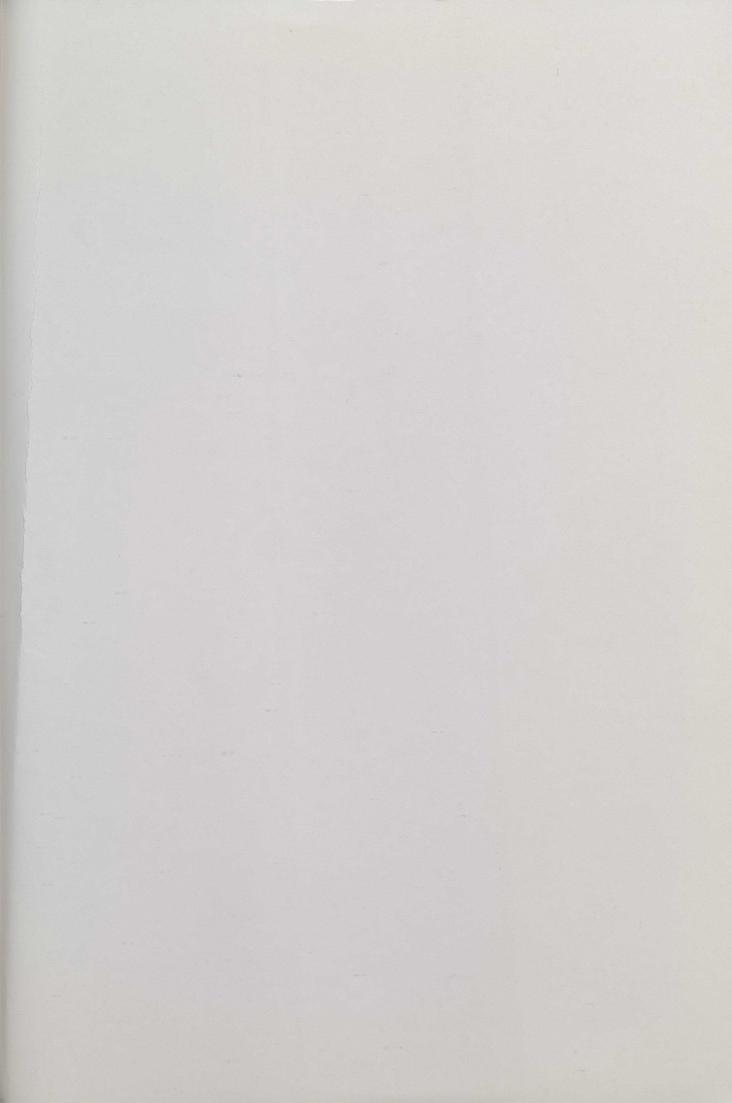
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