Canada

MARKET STUDY
ON
HOUSING AND BUILDING MATERIALS
IN
THE REPUBLIC OF KOREA

PACIFIC CONSULTANTS CORPORATION

Seoul, Korea

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PREPARED

FOR

CANADIAN EMBASSY

c 1998

SEOUL, KOREA

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EXECUTIVE SUMMARY AND RECOMMENDATIONS

Executive Summary

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.

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 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%.

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$

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

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.

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.

Chapter I. BACKGROUND

I.1. The Trend and Prospect of Construction Industry in the Korean Economy

I.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

inflation domestically. Excessive consumption combined with sumptuous moods increases the demand for more imports and finally worsens the balance of trade.

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	5.7%	69.4	21.9	24.3	7.3%	24	7.2%
1983	10.9%	76.0	24.4	26.2	3.4%	2002	12.6%
1984	8.6%	82.4	29.2	30.6	2.3%	2158	9.3%
1985	5.4%	83.7	30.3	31.1	2.5%	2194	7.0%
1986	11.7%	95.3	34.7	31.6	2.8%	2503	12.9%
1987	11.1%	111.6	47.2	41.0	3.0%	3098	12.8%
1988	12.1%	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.

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-

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)

(Unit:'000 sq.m. / US$ billion)

	1989	1990	change(%)
Total Space	85,299	99,134	16.2
Residential	45,207	55,065	21.8
Commercial	25,538	29,262	14.6
Others	14,540	14,807	-2.0
Order receipt	227.3	263.1	16
Construction	152.3	160.0	5
Civil Engineering	65.2	87.0	33
Specialized	9.1	16.1	77
Public	97.7	100.1	2
Private	129.5	163.0	26

Source : Korea Herald, Feb. 14th, 1990

<Table 1-3> Korean Formula for Projecting Construction Demand

	Demand Formula	Coefficient
Residential	D(1t) = -483567 + 0.0571*GNPt <-7.12> <33.49>	0.97
Non-residential	D(2t) = -541815 + 0.0596*GNPt <-6.50> <28.45>	0.96
Engineering work	D(3t) = -395335 + 0.0824*GNPt <-2.77> <22.98>	0.94

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.

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.

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

(unit : US $ million)

	1985	%	1986	%	1987	%	1988	%
Total	4,691	100.0	2,239	100.0	1,711	100.0	1,602	100.0
Middle East	4,285	91.4	1,242	55.5	1,314	76.7	1,251	78.1
(Saudi Arabia)	1,640	35.0	517	23.1	473	27.6	433	27.1
(Libya)	992	21.1	353	15.7	404	23.6	618	38.6
(Iraq)	1,162	24.8	25	1.1	251	14.7	24	1.5
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

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)

(unit:%)

	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
2. Housing ownership Rate = total house owner per ordinary household

Source: Economic Planning Board (EPB)

<Table 1-7> Housing Rate Projection
(1982-1992)

(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.

2. 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 1-8> Statistics of the Construction Industry

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

Source : Korea Stock Exchange

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

(Unit : Million Won)

1985	1986	1987	1988	1989
4,205,273	4,971,268	5,667,002	6,771,730	7,860,600

Source : Construction Association of Korea

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

(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.

3. Public Construction Projects
   - New Town Development Plan

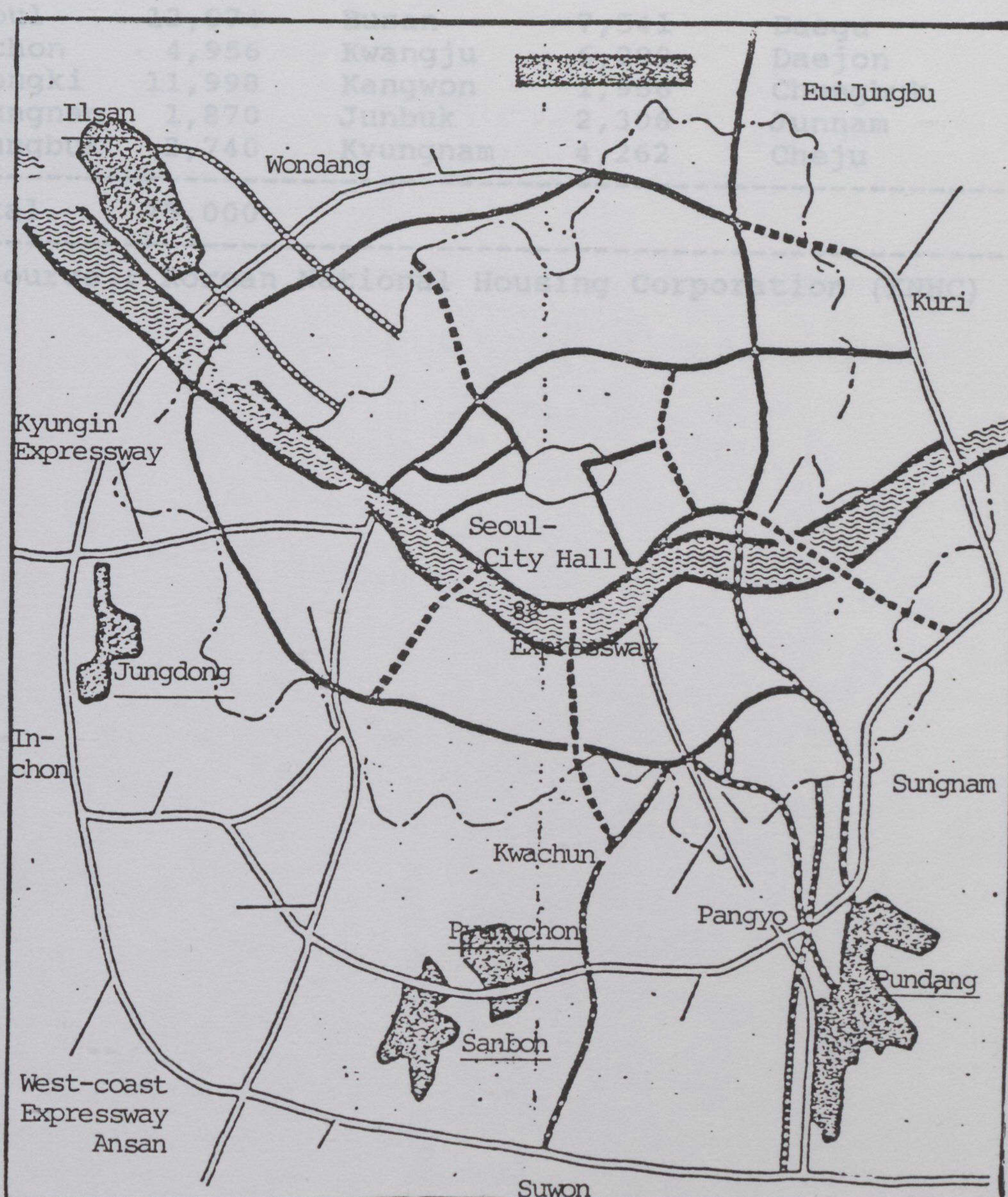
The government planned a number of construction projects including two large residential satellite cities. Some cities are located on the outskirts of Seoul and they are expected to accomodate some 340,000 residential units.

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 con struct 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.

<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 Houses	City or Province	Number of Houses	City or Province	Number of 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)

Chapter II. MARKET ANALYSIS BY SEGMENT

II.1. Exterior Structural Components

II.2. Building Engineering and Equipment

II.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 profits 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

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

		1988	Increase Rate (%)	1989	(%)	1990	(%)
Cement ('000 tons)	Demand	29,797	8.0	31,370	5.3	33,750	7.6
	Supply	29,854	9.0	31,400	5.2	34,040	8.4
	Operation rate(%)	91.8		91.9		89.1	
	Surplus/ Shortage	57		30		290	
Steel-Bar '000 tons)	Demand	3,625	7.0	4,005	10.5	4,325	8.0
	Supply	3,622	6.0	4,089	12.9	4,347	6.3
	Operation rate(%)	90.0		98.7		97.7	
	Surplus/ Shortage	-3		84		22	

Source : The Daily Construction News

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

Items	Demand/sq.mt.	Unit	Annual Demand for 2 Million Housings Apartment Construction 1989	1990	1991	1992	Annual Average Demand	Annual Capacity
Reinforcing Bar	40 Kg	'0000t	130	144	154	169	288	460
Cement	460 Kg	'0000t	1490	1656	1780	1945	2484	3144
Tile	0.61sq.m	33058sq.m	648	720	774	846	1440	1202
Sanitary Fixtures	0.06sq.m	'0000sets	65	72	77	85	87	52
Glass	0.00018 box	'0000boxes	583	648	696	761	1296	1200
Sand	0.4 cb.m	'0000cb.m	1296	1440	1548	1692	2880	-
Concrete	0.5 cb.m	'0000cb.m	1620	1800	1935	2115	3600	7564
Pile	0.035unit	'000	1134	1260	1354	1480	1890	1140
Cement Bricks	85bricks	'000	2,907,000	3,060,000	3,289,500	3,595,500	4,590,000	-

Source : The Daily Construction News

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)

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

(Unit:'000 M/T , US$ Million)

	Domestic Production		Export		Import		Demand	
	Q'ty	Value	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.

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

(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)
   Agent : Il Shin Stone Co., Ltd.
   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 end-users prefer are within the range of some serial physical-mechanical 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

1990	1991	1992	1993
5%	4%	4%	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)

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

Wood	4,702	74	17.8	5,338	104	19.4
Others	800	29	7.0	890	32	5.9
Total	17,060	415		18,665	536	

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

(Unit:US$)

	1988 Export	1988 Import	1989 Export	1989 Import
Plastic				
Japan	65,971	-	44,404	-
U.K.	31,640	-	-	2,717
U.S.A.	-	11,781	-	26,645
W/G	-	14,763	-	7,171
Nethlds	-	-	128,738	-
Austral.	-	-	86,420	-
Phil.R	-	-	3,519	-
Others	15,623	6,883	-	4,291
Total	113,234	33,427	263,081	40,824
Aluminium				
Japan	364,424	795,066	623,402	251,968
Canada	679,144	-	50,645	14,332
U.S.A.	6,086,267	241,480	6,020,619	154,773
Phil.R	1,522,173	-	313,389	-
HongKong	3,415,018	-	1,047,792	-
Singapore	-	-	194,747	-
Saudi-A	1,283,755	-	117,440	-
W/G	-	-	-	48,661
France	-	-	-	87,031
Finland	921,076	-	185,056	-

Libya	5,820,737	-	1,764,495	-
Austral.	-	-	-	74,313
New Zlnd	-	122,681	-	67,862
Others	523,051	143,131	1,127,280	6,068
Total	20,615,645	1,302,358	11,800,350	705,008
Wood				
Japan	572,448	-	374,118	290,158
Canada	-	-	-	129,959
U.S.A.	1,206,728	418,007	932,523	684,946
Phil.R.	387,608	11,823	77,279	-
HongKong	396,572	-	-	-
U.K.	-	-	-	2,882
W/G	-	-	-	86,022
Austral.	-	-	-	1,652
Libya	264,494	-	-	-
Others	188,780	39,960	342,753	139,566
Total	3,016,630	469,790	1,726,673	1,335,185
Total				
Japan	1,002,843	795,066	1,041,924	542,126
Canada	679,144	-	50,645	144,291
U.S.A.	7,292,995	671,268	6,953,142	866,364
Libya	6,085,231	-	1,764,495	-
Phil.R.	1,909,781	11,823	394,187	-
HongKong	3,811,590	-	1,047,792	-
U.K.	-	-	-	5,599
W/G	-	-	-	141,854
Nethlds	-	-	128,738	-
Austral.	-	-	86,420	75,965
Singapore	-	-	194,747	-
Saudi-A	-	-	117,440	-
France	-	-	-	87,031
Finland	-	-	185,056	-
New Zland	-	-	-	67,862
Others	2,963,925	327,418	1,825,518	149,925
Grand Total	23,745,509	1,805,575	13,790,104	2,081,017

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%.

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

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

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>

Code	Width	Height	Thickness	Code	Width	Height	Thickness
60180	590	1790	OVER 30	60210	590	2090	OVER 30
70180	690			70210	690		
80180	790			80210	790		
100180	990			100210	990		
120180	1190	1790	OVER 36	120210	1190	2090	OVER 36
150180	1490			150210	1490		
180180	1790			180210	1790		
200180	1990			200210	1990		
210180	2090			210210	2090		
240180	2390	1790	OVER 40	240210	2390	2090	OVER 40
270180	2390			270210	2690		
300180	2990			300210	2990		
330180	3290			330210	3290		
360180	3590			360210	3590		

60200	590	1990	OVER 30	60240	590	2390	OVER 30
70200	690			70240	690		
80200	790			80240	790		
90200	890			90240	890		
100200	990			100240	990		
120200	1190	1990	OVER 36	120240	1190	2390	OVER 36
150200	1490			150240	1490		
180200	1790			180240	1790		
200200	1990			200240	1990		
210200	2090			210240	2090		
240200	2390	1990	OVER 40	240240	2390	2390	OVER 40
270200	2690			270240	2690		
300200	2990			300240	2990		
330200	3290			330240	3290		
360200	3590			360240	3590		

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 :
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

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

(5) Tariff Schedule

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

	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.

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$)

	1988		1989	
	Export	Import	Export	Import
Japan	58,523	842,791	33,372	654,539
Canada	-	-	-	1,194
R.China	1,190,281	-	2,152,952	-
Hongkong	1,330,540	-	1,541,955	-
Singapore	217,358	-	262,340	-
Indonesia	366,988	-	403,941	-
U.S.A.	28,450	83,657	-	36,415
Pakistan	-	-	109,270	-
India	-	-	103,459	-
Others	516,938	23,219	221,824	30,223
Total	3,709,078	949,667	4,828,113	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

(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)
Agent : Cheol Kun Co., Ltd.
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

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

k. Supplier : San-A Trading (Japan)
Agent : Korea Sam-A Trading Co., Ltd
Tel : (02) 253-5271/2
Tlx : HANSAM K24403
Fax : (02) 752-1809

(4) KS (Korea Industrial Standard) Specifications

a. Fiber Glass

<Qualifications>

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

b. Glass fiber board

<Qualifications>

		Density (Kg/cube.m.)	Thermal Conductivity (Kcal/m*h*c) ave. temp.70+-5 C	0 C	Glass Fiber Used
BOARD #2	16K	16+-2	below 0.050	below 0.033	#2
	20K	20+-2	0.045	0.030	
	24K	24+-2	0.042	0.029	
	32K	32+-4	0.040	0.028	
	40K	40+-4	0.038	0.027	
	48K	48+-4	0.037	0.026	
	64K	64+-6	0.036	0.026	
	80K	80+-7	0.036	0.026	
	96K	96+-9	0.036	0.026	
	120K	120+-12	0.036	0.026	
BOARD #3	80K	80+-7	0.040	0.030	#3
	96K	96+-9			
	120K	120+-12			

(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

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.

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$)

	1988		1989	
	Export	Import	Export	Import
Cedar Shingles				
Japan	-	140,810	464,008	26,247
Canada	-	377,336	-	5,262,112
U.S.A.	-	72,346	-	2,989,318
Total	-	590,492	464,008	8,277,677
Asphalt Shingles				
Japan	-	1,117,550	-	169,855
Canada	-	120,345	-	379,320
U.S.A.	-	1,010,755	-	2,343,042
Italy	-	-	-	353,846
Norway	-	-	-	528,726
Spain	-	-	-	421,429
W/G	-	349,143	-	317,218
Kuwait	-	-	50,464	-
Others	9,500	607,181	12,528	144,208
Total	9,500	3,204,974	62,992	4,657,644
Roofing Tiles (Ceramic)				
Japan	-	3,878	164,601	3,323
R.China	-	16,884	-	-
Phil.R	-	-	8,657	-
Thailand	-	-	81,979	-
Guam	-	-	46,034	-
Italy	-	-	-	52,882
Australia	-	13,884	-	-
Total	-	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

Total				
Japan	21,568	1,262,238	628,609	199,425
Canada	-	497,681	-	5,666,859
U.S.A.	-	1,083,101	-	5,381,840
Italy	-	-	-	406,728
Norway	-	-	-	528,726
Spain	-	-	-	421,429
W/G	-	349,143	-	317,218
Others	9,500	637,562	209,032	144,208
Grand Total	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

- Asphalt & Cedar Shingles

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

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 shingles
Supplier : Tegola (Italy)
Agent : Cheol Kun Co., Ltd.
Tel : (02) 273-1227/8
Tlx : CKSTAR K22897
Fax : (02) 273-5568

c. Product : poly coat roof system
Supplier : Southwestern Petroleum (USA)
Agent : Shin Sung Int'l
Tel : (02) 718-2990
Tlx : MOCNOM K23231
Fax : (02) 757-0115

d. Product : Alaska red cedar
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

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	over 200	within 12
medium	over 200	within 12
large	over 200	within 12

* OGUM style / S style tiles

	grade 1 bending-destruction (kg*f)	grade 1 hydrating (%)	grade 2 b-d load	grade 2 hydrating
OGUM	over 200	within 12	over 180	within 15
S	over 200	within 12	over 180	within 15

b. 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

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>

	density conductivity (g/sq.cm)	thermal intensity (kcal/mh*deg)	curb constriction (kgf/sq.cm)	linear (%)
thermos board#1 thermos tube #1	less than 0.22	less than 0.053	over 3.0	less than 2.0
thermos board#2 thermos tube #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
- shape : basically, a perfect square or a rectangle
  The width of the air-layer should be over 4 mm.

f. Synthetic polymeric roofing sheets

<Qualifications>
- dimensions

	thickness(mm)	length(m)	width(m)
vulcanized rubber	0.8 1.0 1.2	20	1.2
	1.5 2.0	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	20	1.0 1.2
	1.5 2.0	10 15	1.0 1.2

(5) Tariff Schedule

<Table 2-11> Tariff Schedule of the Importation of Roofing Materials

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

Source : Tariff 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.

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

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.

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

(Unit : US$)

	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	-
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	3,277
U.S.A.	2,560	15,854	-	332,329
France	-	560,732	-	1,071,131
Italy	1,018	283,458	-	384,801
W/G	-	178,452	-	2,725,975
Nethlds	-	-	-	149,508
Others	-	3,629	-	25,630
Total	3,578	1,045,079	2,397	4,692,651
Others & Parts				
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

Radiators				
Japan	10,238	123,674	135,861	-
Canada	1,327	21,675	-	-
U.S.A.	1,252,005	259,923	1,079,564	103,575
India	-	-	80,000	-
Indonesia	-	-	296,901	-
Singapore	-	-	-	56,770
Others	6,853	5,215	27,819	2,550
Total	1,270,423	410,487	1,620,145	162,895
Solar Collectors and Parts				
Australia	-	2,000,961	-	3,143,213
Austria	-	453,861	-	-
U.S.A.	-	-	-	25,006
France	-	26,890	-	-
Others	-	-	-	7,213
Total	-	2,481,712	-	3,175,432
Air Heaters				
Japan	12,531	553,485	25,118	998,935
Canada	-	4,022	-	19,268
U.S.A.	1,620	970,348	26,850	787,095
Italy	-	-	-	139,507
Belgium	-	-	-	68,313
Others	6,348	10,488	79,789	1,723
Total	20,499	1,538,343	131,757	2,014,841
Electric Radiators & Heaters				
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	-	-	87,753	422,516
Belgium	135,424	-	633,559	-
France	-	-	188,022	77,098
Italy	-	-	-	173,376
W/G	-	580,892	20,170	878,573
U.K.	-	88,937	35,354	407,027
Spain	-	-	-	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				
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	-

Indonesia	-	-	296,901	-
Singapore	-	-	-	56,770
Belgium	-	-	633,559	68,313
France	-	3,199,489	188,022	9,750,268
Australia	-	2,000,961	-	3,143,213
W/G	-	759,344	20,170	4,161,281
Italy	1,018	611,879	2,060	1,556,962
Denmark	-	-	-	2,044,863
Nethlds	-		-	557,187
Spain	-	-	-	177,261
Sweden	-	456,969	-	-
Swiss	-		-	75,166
U.K.	-	-	35,354	407,027
Austria	-	453,861	-	-
Libya	-	-	22,209	-
U.A.E.	1,237,403	-	-	-
Others	605,231	595,165	381,223	209,083
Grand Total	8,262,120	16,562,300	10,246,002	29,482,683

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

g. Product : gas boiler
Supplier : Biklim (Italy)
Agent : Korea Biklim Co., Ltd.
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

i. Product : gas fired chiller, heater
Supplier : Pacific Gas Energy (USA)
Agent : Samchang Commercial Co.,Ltd.
Tel : (02) 783-8689/3870
Tlx : SANKYO K26634

j. Product : steel boiler
Supplier : EMA overseas (USA)
Agent : Youman Ind. Co.,Ltd.
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

l. Product : heater, boiler
Supplier : American standard (USA)
Int'l Trade (usa)
Agent : Standard Int'l Trade
Tel : (02) 275-8952
Fax : (02) 277-1997

m. Product : boiler
Supplier : L & W Equipment (USA)
Agent : Well Trading Co.,Ltd.
Tel : (02) 562-1341
Tlx : KWELL K24112
Fax : (02) 552-9329

(3) Import Agencies

- Heating Equipment

a. 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

b. Product : boiler, air conditioner
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

d. 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

o. Product : gas boiler
Supplier : Koge (W/G)
Agent : Jin Energy Co.
Tel : (02) 718-8233/5
Tlx : JINFAX K28908
Fax : (02) 718-8236

p. Product : gas boiler
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 : boiler
Supplier : Konhose (USA)
Agent : Sebong Corp.
Tel : (02) 798-1401/2
Fax : (02) 797-9919

s. Product : boiler
Supplier : Urasi Trade (USA)
Agent : Young Jin Co.
Tel : (02) 265-3267
Fax : (02) 273-7951

t. 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	13%	11%	9%	8%
Electric	16%	13%	10%	8%
Solar Collector	10%	10%	9%	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.

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

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

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.

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

(Unit : %)

		Others				
Samsung	Goldstar	Samick	OPC	Daewoo	Hyundai	Lotte
47	40			13		

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

b. Goldstar Telecommunication Co., Ltd.
Lucky-Goldstar Twin Towers, 20, Yoido-Dong, 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
Tel : (02) 275-8952
Tlx : (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$)	Installation Fee (US$)	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.

II.3. Interior Fittings

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

(Unit : US$)

	1988 Export	1988 Import	1989 Export	1989 Import
of Natural Stones				
Japan	385,633	-	758,839	20,813
Canada	17,473	-	-	-
U.S.A.	7,570	117,592	-	215,245
R.China	-	-	-	45,144
Others	63,815	18,078	11,272	-
Total	474,491	135,670	770,111	281,202
of Cement or Artificial Stones				
Japan	28,001	9,378	99,695	28,744
Italy	-	707,030	-	604,818
Indonesia	-	282,956	-	269,116
U.S.A.	1,980	233,443	40,576	25,376
Spain	-	-	-	67,856
R.China	-	-	-	45,375
Others	21,919	118,669	25,810	162,326
Total	51,900	1,351,476	166,081	1,203,611

Ceramic				
Japan	900,482	602,857	1,092,920	124,175
Canada	1,154,021	-	1,191,215	-
U.S.A.	7,281,667	1,107,224	5,675,088	441,556
R.China	-	-	-	376,892
Hongkong	-	-	63,972	996,202
Indonesia	-	-	-	409,879
Thailand	-	-	-	330,205
Spain	-	-	10,681	860,960
W/G	400,493	660,453	135,651	688,379
Italy	-	1,049,514	-	1,816,851
Turkey	-	-	-	229,920
Austral	2,448,378	-	1,817,756	-
Others	2,160,824	1,661,056	1,187,842	4,221,066
Total	14,345,865	5,081,104	11,175,125	10,496,085
Total				
Japan	1,314,116	612,235	1,951,454	173,732
Canada	1,171,494	-	1,191,215	-
U.S.A.	7,291,217	1,458,259	5,715,664	682,177
Italy	-	1,756,544	-	2,421,669
Austral	2,448,378	-	1,817,756	-
R. China	-	-	-	467,411
Indonesia	-	-		678,995
Spain	-	-	10,681	928,816
HongKong	-	-	63,972	996,202
Tailand	-	-	-	330,205
W/G	-	-	135,651	688,379
Turkey		-	-	229,920
Others	2,647,051	2,741,212	1,224,924	4,383,392
Grand Total	14,872,256	6,568,250	12,111,317	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

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. It is due to the fact that Italy exports high quality 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.

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

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.	8,330.6	20.9
Dongsu Industrial Co., Ltd.	6,307.5	15.9
Far East Ceramics Co., Ltd.	3,768.6	9.5
Sungchang Enterprise Co., Ltd.	3,570.3	9.0
Sam Won Ceramics Co., Ltd.	3,490.9	8.8
Iwha Industrial Co., Ltd.	3,173.6	8.0
Daelim Ceramic Co., Ltd.	1,388.4	3.5
Daeho Tile Co., Ltd.	357.0	0.9
Others	9,362.0	23.5
Total	39,748.9	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

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

k. Product : ceramic mosaic tiles
Supplier : Link (USA)
Agent : Dong-a Trading
Tel : (02) 555-1083
Tlx : EASTCO K23913
Fax : (02) 552-6630

l. 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

(4) KS (Korea Industrial Standard) Specifications

- Ceramic Tile

<Qualification>

		Hydrating Rate(%)	Gauge-pressure (auto-clave exp.) kgf / sq.cm	Defacement (g)
Interior	Earthenware	less than 1.0	10	-
	Stone	less than 10	7	
	Porcelain	less than 18	10	
Exterior	Earthenware	less than 1.0	10	
	Stone	less than 10	7	-
Floor	Earthenware	less than 1.0	10	less than 0.1
	Stone	less than 10	7	less than 0.1
Mosaic	Earthenware	less than 1.0	10	less than 0.1

(5) Tariff Schedule

<Table 2-20> Tariff Schedule for Tile Importation

	1990	1991	1992	1993
Ceramic	13%	11%	9%	8%
Cement	13%	11%	9%	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, medium-small constructors and regular consumers. These groups hold 80%, 15% and 5% of the total consumption, respectively.

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

(Unit: '000 Sets, %)

	1988		1989		1990	
	Q'ty	Increase Rate	Q'ty	Increase Rate	Q'ty	Increase Rate
Demand	554	21	636	15	741	17
-Domestic	545	24	627	15	732	17
-Export	9	-67	9	0	9	0
Supply	600	40	745	24	740	-1
-Manufactured	400	-9	520	30	550	6
-Imported	200	-	225	13	190	-16
Inventory	49		158		157	

Source : Korea 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.

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

(Unit: '000 Sets)

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

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

(Unit:US$)

	1988		1989	
	Export	Import	Export	Import
Ceramic				
Japan	326,266	418,032	451,633	912,288
Canada	23,138	-	59,644	-
U.S.A.	217,282	6,932,695	118,156	14,933,456
R.China	-	1,907,800	396,010	1,997,401
Hongkong	-	-	1,184	418,780
U.K.	-	-	252,426	54,721
Indonesia	-	-	-	389,378
Italy	-	-	-	193,660
W/G	-	-	-	120,677
Thailand	-	2,208,707	-	4,532,326
Brazil	-	1,582,961	-	2,505,492
Mexico	-	617,892	-	1,084,563
Others	419,101	1,532,216	115,656	2,333,816
Total	985,787	15,200,303	1,394,709	29,476,558

Aluminium				
Japan	-	-	36,461	-
HongKong	211,249	-	237,312	-
U.S.A.	1,675	8,541	12,712	9,356
U.K.	-	9,000	-	-
W/G	-	-	-	5,461
Others	-	12,436	61,520	-
Total	212,924	29,977	348,005	14,817
Plastic				
Japan	4,868,847	1,472,468	5,043,807	339,724
Canada	7,768	-	1,599	-
U.S.A.	408,769	680,404	189,755	480,323
Norway	2,134	389,970	-	-
R.China	-	-	6,170	165,069
Hongkong	-	-	14,410	2,118
Indonesia	-	-	4,104	-
Thailand	-	-	-	49,740
W/G	-	-	6,681	33,305
U.K.	-	-	-	16,083
Brazil	-	-	-	23,423
Others	548,405	264,970	96,761	62,005
Total	5,835,405	2,807,812	5,363,287	1,192,411
Iron or Steel				
Japan	523,019	285,493	193,997	207,159
Canada	643,196	-	236,523	-
U.S.A.	14,486,318	1,535,533	11,630,318	1,195,152
R.China	-	-	11,855	6,978
Hongkong	-	-	39,546	-
U.K.	-	-	20,330	79,494
Italy	-	-	-	52,108
W/G	122,850	191,565	-	78,442
Others	577,175	232,280	715,857	138,046
Total	16,352,558	2,244,871	12,848,426	1,757,379
Total				
Japan	5,718,132	2,175,993	5,725,898	1,459,171
Canada	674,102	-	297,766	-
U.S.A.	15,114,044	9,157,173	11,950,941	16,618,287
Hongkong	220,111	-	292,452	420,898
Thailand	-	2,208,707	-	4,582,066
R.China	-	1,907,800	414,035	2,169,448
Indonesia	-	-	4,104	389,378
Italy	-	-	-	245,768
W/G	122,850	191,565	6,681	237,885
U.K.	-	-	272,756	79,494

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

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

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	-	-	-
U.S.A.	23,442	473,542	43,411	695,441
Italy	-	53,660	-	216,953
France	-	-	-	10,716
W/G	-	-	-	5,923
U.K.	-	-	-	84,302
R.China	-	320,099	-	352,550
Thailand	-	295,125	-	771,018
Brazil	-	254,874	-	-
Others	34,402	304,445	23,534	316,762
Total	64,218	1,701,745	66,945	2,647,860

Plastic				
Japan	165,043	49,410	263,651	118,389
U.S.A.	122,029	331,569	51,550	345,099
R.China	-	-	-	12,017
Thailand	-	-	-	8,784
Italy	-	-	-	3,920
W/G	-	-	-	39,823
U.K.	-	-	-	9,719
Others	32,347	31,543	17,882	-
Total	319,419	412,522	330,083	537,751
Iron or Steel				
Japan	48,645	191,427	25,196	325,316
Canada	14,186	-	-	-
U.S.A.	476,745	1,417,713	142,712	1,598,643
R.China	-	-	64,708	2,999
Italy	-	234,236	-	720,797
W/G	38,671	113,457	-	70,092
Finland	-	-	112,932	-
France	-	-	-	29,602
U.K.	-	-	-	15,252
Others	153,605	100,466	45,985	122,061
Total	731,852	2,057,299	391,533	2,884,762
Total				
Japan	218,717	360,391	288,847	637,900
Canada	15,531	-	-	-
U.S.A.	622,216	2,222,824	237,673	2,639,183
W/G	38,671	113,457	-	-
Italy	-	234,236	43,411	1,420,158
France	-	-	-	40,318
U.K.	-	-	-	109,273
Finland	-	-	112,932	-
R.China	-	320,099	64,708	367,566
Thailand	-	295,125	-	779,802
Brazil	-	254,874	-	-
Others	220,354	370,560	87,401	438,823
Grand Total	1,115,489	4,171,566	834,972	6,548,861

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

(2) Major Domestic Manufacturers

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

<Table 2-25> Production of Sanitary Fixtures and Bathroom Kits by Major Domestic Manufacturers(1989)

(Unit; '000 sets, %)

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

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)

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

l. 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

(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

size	bending range
less than 1000mm	5 mm
over 1000 mm	7 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.

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

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

(Unit : US$)

	1988		1989	
	Export	Import	Export	Import
Japan	42,380	64,392	33,260	112,633
R.China	1,002,671	-	1,127,344	-
Malaya	282,771	-	279,564	-
U.S.A.	-	657,782	-	117,868
W/G	-	53,122	-	-
Bahrein	102,214	-	36,195	-
Sweden	-	-	-	111,436
Others	160,007	4,120	200,775	14,148
Total	1,590,043	779,416	1,677,138	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

(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

	thick -ness	allowables thickness	width	length	weight (kg/sq.m)
grade1 incombustible	12	+- 0.5	-3	+3	9.6 - 11.4
	15	+- 0.5	-3	+3	10.5 - 12.0

grade 2 incombustible	9	+- 0.5	-3 +3	6.3 - 7.2
	12	+- 0.5	-3 +3	7.8 - 9.0

thickness	deflection-destruction load(kgf)	incombustible grade	heat-resist. (sq.m*h*c/Cal)
9	over 40	2	over 0.05
12	over 52	1 or 2	over 0.07
15	over 70	1	over 0.08

(5) Tariff Schedule

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

1990	1991	1992	1993
13%	11%	9%	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

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.

<Table 2-29> Export and Import of Carpets and Flooring Materials

(Unit : US$ '000)

	1988		1989	
	Export	Import	Export	Import
Carpets and other Textile Floor Coverings				
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	-	-	787	243
Hongkong	269	965	268	1,118
Pakistan	-	-	-	150
Singapore	-	-	1,266	63
Kuwait	2,960	-	-	-
Belgium	184	4,236	144	8,293
France	-	-	92	108
Nethlds	-	-	6	162
W/G	-	-	167	277
Saudi-A.	9,006	37	6,354	18
U.K.	-	1,908	13	1,362
U.A.E.	-	-	1,686	1
India	-	-	-	198
Others	5,134	2,506	1,843	5,048
Total	30,703	18,492	24,407	22,637

Vinyl or Plastic				
Canada	44	129	26	197
Japan	7,614	3,142	7,997	2,128
U.S.A.	1,031	3,160	393	2,340
R.China	82	351	589	272
Hongkong	21,245	2	12,911	5
Singapore	2,811	-	2,673	44
Pakistan	1,057	-	1,106	-
Nethlds	-	-	1,280	10
France	284	287	680	606
W/G	-	-	965	186
Luxmbrg	-	-	-	241
Sweden	2,762	212	2,529	230
Saudi-A.	4,857	-	2,663	-
U.K.	201	695	242	570
U.A.E.	5,075	-	2,270	-
Sudan	-	-	1,744	-
N.Yemen	3,124	-	611	-
Nigeria	5,437	-	4,342	-
Austral.	-	-	1,173	-
Others	13,972	410	13,169	155
Total	69,596	8,388	57,363	6,984

Total				
Canada	2,115	212	3,124	257
Japan	12,075	3,794	11,240	2,773
U.S.A.	7,649	11,265	5,833	7,231
R.China	82	351	1,376	515
Hongkong	21,514	967	13,179	1,123
Singapore	2,811	-	3,939	107
Pakistan	1,057	-	1,106	150
Kuwait	2,960	-	-	-
Belgium	184	4,236	144	8,293
France	284	287	772	714
Nethlds	-	-	1,286	172
W/G	-	-	1,132	463
Luxmbrg	-	-	-	241
Sweden	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	-	-	1,744	-
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

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

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 Tlx : KOHAP K27524
  Fax : (02) 733-3064

- 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

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. 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)
Agent : Younghan Trading Co.
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

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

l. 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

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)	broad-leaf	max. 1	max. 2
	needle-leaf	max. 2	max. 7
bending degree		less than 0.1%	convenient
holes		no	no
hydrating rate		max. 15 %	

d. Flooring board treated with preservatives by pressure process

<Qualifications>
Same with the above-mentioned flooring board

(5) Tariff Schedule

<Table 2-30> Tariff Schedule for Carpet Importation

	1990	1991	1992	1993
Wool, Fine Animal Hair, or other Textile Materials	16%	13%	10%	8%
Vinyl or Plastic	13%	11%	9%	8%

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

Chapter III.PROMOTION

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
9th - 14th, Mar. 1990	International Housing Material Show Joong-Ang Daily News SVP Tel : (02) 752-7741/3 Fax : (02) 778-2038
23rd - 28th, Mar. 1990	KyungHyang Housing Fair '90 The KyungHyang Daily News Tel : (02) 730-5151
28th Mar. - 2nd Apr. 1990	Sintex '90 (Seoul Int'l Total Interior Exhibition) Korea Exhibition center (KOEX) Tel : (02) 551-1123/4 Fax : (02) 555-7414 Tlx : KOEXCEN K24594
4th - 8th, Jun. 1990	Sikitchen '90 (Seoul Int'l Kitchen and Sanitary Goods Exhibition) KOEX Tel : (02) 551-1114 Fax : (02) 555-7414
2nd - 6th, Jul. 1990	KISS '90 (The 8th Int'l Safety and Security Exhibition) Korea Industrial Safety Corporation Tel : (02) 797-5996 Fax : (02) 795-4872

31st Aug. - 4th Sep. 1990	SIBUILD '90 (The 3rd Seoul Int'l Building 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 a permanent exhibition booth in KOEX.

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

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 construction 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) 784-3403
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.

Chapter IV. PLAN 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.

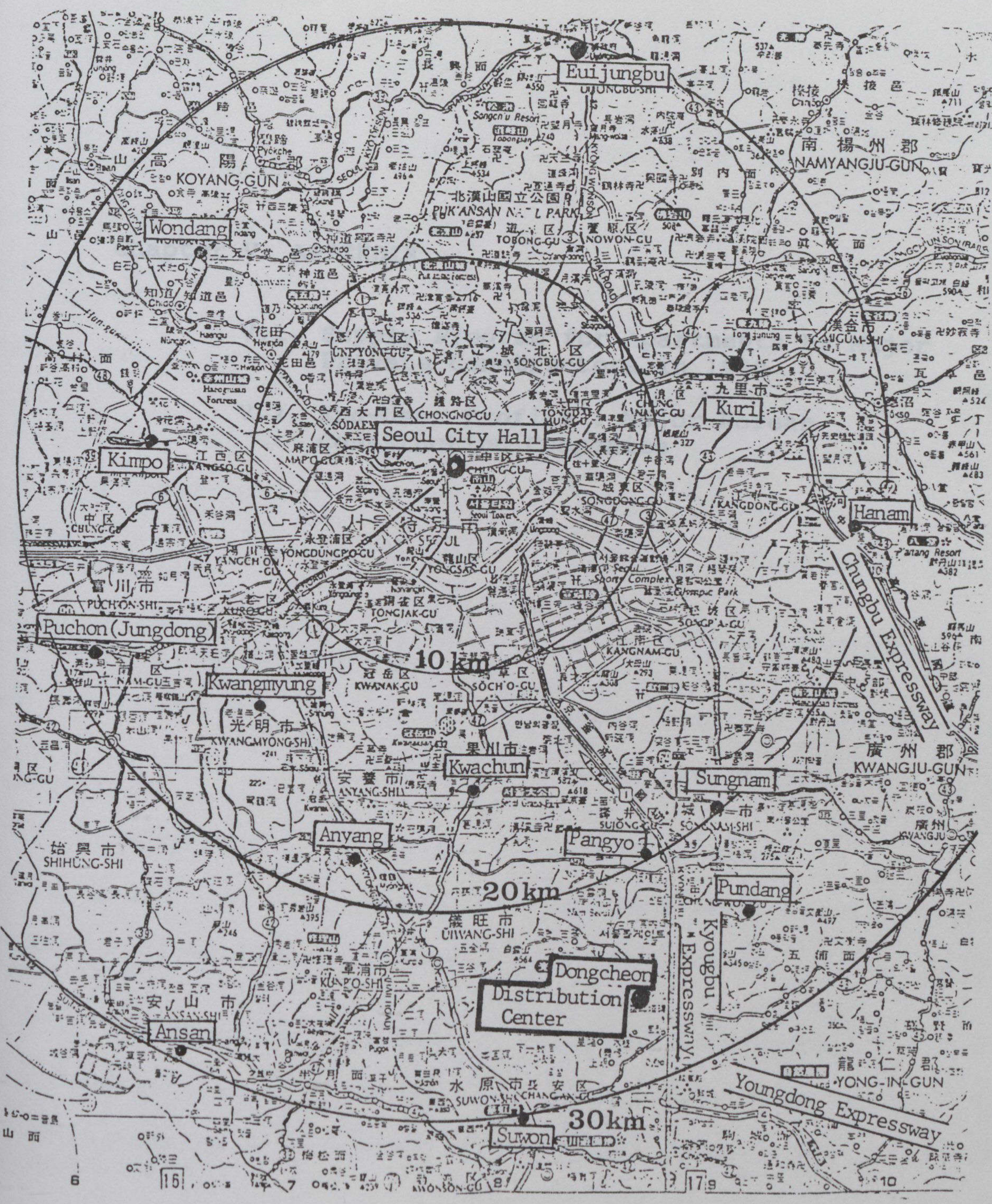
The center will be located around Dongcheon-Ri, Sooki-Myun, Yongin-Kun and Kyungki-Do. The Center will be as large as 152,066.8 sq.mt. on the ground of 267,769.8 sq.mt. The budget planned is 44.1 billion Won (US $ 63.42 million) and the construction is expected to be completed by 1991.

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.

<Figure 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

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

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	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	2,092
KwangJu Highway Lines, Construction and Engineering	7,165	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

Kuk Dong Construction	4,810	Keum Kang Construction	536
Woo Bang Housing Construction	4,800	Nam Kwang Engineering Construction	536
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 Construction	258
Total	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

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.
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Telex : K27477, K22607

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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.
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Telephone : (02) 777-5291/7
Telex : DWDEN K24444
Fax. : (02) 777-5291

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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
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Telex : DONG AH K26219
Fax. : (02) 756-9710

Dong Kook Development Co., Ltd.
Add. : 1071-4 KwangAhn-dong, Nam-gu, Pusan 608
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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.
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Telephone : (02)323-1351/4

Myungji Construction Inc.
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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 K26397
Fax. : (02) 275-3615

Mirim Construction Co., Ltd.
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Telephone : (02) 546-7821

Pum Yang Construction Co., Ltd.
Add. : 750-14 BangBae-dong, KangNam-gu, Seoul 135
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Telex : PUMKOR K22023
Fax. : (02) 533-8089

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Telex : SAMDO K23215

Sambu Construction Co., Ltd.
Add. : 9-1 NamChang-dong, Jung-gu, Seoul 100
Telephone : (02) 756-3900/29
Telex : SAMBU K28138

Sam Sung Construction Co., Ltd.
Add. : 156-16 YangDuck-dong, MaSan, KyungNam 610
Telephone : (0551) 55-6112, 56-4237

Samsung Construction Co., Ltd.
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Telephone : (02) 757-8877
Telex : STACON K23291
Fax. : (02) 757-4960

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Sam Yang Construction Co., Ltd.
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Telephone : (02) 273-2676/9

Sam Ick Construction Co., Ltd.
Add. : 646-18 YuckSam-dong, KangNam-gu, Seoul 135
Telephone : (02) 556-2161, 1278, 1631
Telex : K24348

Samick Corporation
Add. : 65-228 3-ga HanGang-ro, YongSan-gu, Seoul 140
Telephone : (02) 798-2681/9
Telex : K23376

Sam Chully Housing Co., Ltd.
Add. : 909-9 BangBae-dong, KangNam-gu, Seoul 135
Telephone : (02) 584-4777

Samho International Co., Ltd.
Add. : 757-1 BangBae-dong, KangNam-gu, Seoul 135
Telephone : (02) 591-6011/9, 7011/6
Telex : SAMSA K25212
Fax. : (02) 532 4344

Sam Whan Corporation
Add. : 98-20 WoonSa-dong, Jongro-gu, Seoul 110
Telephone : (02) 765-0151, 1871/9, 3471/9
Telex : SAMWHAN K24389
Fax. : (02) 742-1849

Sam Hwan Camus Co., Ltd.
Add. : 17-3 YouWuiDO-dong YoungDeounPo-gu, Seoul 150
Telephone : (02) 784-0291
Telex : SAMWHAN K28212
Fax. : (02) 742-1849

Ssang Young Construction Co., Ltd.
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Telephone : (02) 730-8121
Telex : SSCONST K24421
Fax. : (02) 739-7811

Seo Kwang Ind., Co., Ltd.
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Telephone : (02) 922-0771/6

Seojin Construction Co., Ltd.
Add. : 102-5 JungAng-dong, ChangWon, KyungNam 615
Telephone : (0551) 84-7568/70

SunKyong Engineering Fax. Construction Limited
Add. : 192-18 KwanHoon-dong, Jongro-gu, Seoul 110
Telephone : (02) 738-2222
Telex : K26292
Fax. : (02) 736-7040

Sung Won Construction Co., Ltd.
Add. : 1305-3 SeoCho-dong, KangNam-gu, Seoul 135
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Sung Jee Construction Co., Ltd.
Add. : DoHwa-dong, MaPo-gu, Seoul 121
Telephone : (02) 718-2441
Telex : SUNG JEE K24415
Fax. : (02) 719-5872

Sung Ha Construction Co.,Ltd.
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Sea Kyung Construction Co., Ltd.
Add. : 26-1 1-ga JungAng-ro, Chun, KangWon 200
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Fax. : (0361) 2-5659

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Add. : 590-296 JyungAm-dong, KunSan, JunBuk 511
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Shin Duck General Construction Co., Ltd.
Add. : 320-5 SukSoo-dong, AhnYang, KyungKi 171
Telephone : (0343) 2-4171/5

Shindongah Construction Co., Ltd.
Add. : 69-167 6-ga YongSan-dong, YongSan-gu, Seoul 140
Telephone : (02) 797-1701/2
Telex : SDACON K23326

Shin Dong-A Construction Co., Ltd.
Add. : 945-25 BongChun-dong, KwanAk-gu, Seoul 151
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Shin Lim Construction Co., Ltd.
Add. : 35-5 WonPyung-dong, GooMi, KyungBuk 641
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Telex : SINSUNG K27598
Fax. : (02) 567-1775

Sin An Construction Industrial Co., Ltd.
Add. : 1006-2 OhGok-dong, KangSeo-gu, Seoul 150-02
Telephone : (02) 604-8771/3

Sin Woo Construction Co., Ltd.
Add. : 8-13 YoSun-dong, ChoonChun, KangWon 200
Telephone : (0361) 52-4535

Shin Il Engineering Co., Ltd.
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Telephone : (02) 546-3071/4

Shin Jin Construction Co., Ltd.
Add. : 47-2 SungNam 2-dong, Dong-gu, DaeJun, ChoongNam 300
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Shin Han Engineering Telex Construction Co., Ltd.
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Telephone : (02) 784-8421
Telex : SHECCO K27206
Telex : (02) 784-7443

Shin Wha Eng. Telex Construction Co., Ltd.
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Telephone : (02) 719-4521
Telex : K26428
Fax. : (02) 719-1005

Shin Heung Industrial Co., Ltd.
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Yong Ma Construction Co., Ltd.
Add. : 52 ChungDam-dong, KangNam-gu, Seoul 135
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Woo Bang Housing Construction Co., Ltd.
Add. : 300-12 ShinChoon0dong, Dong-gu, DaeGu 635
Telephone : (053) 756-7011/20

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Add. : 1586-7 SeoCho-dong, SeoCho-gu, Seoul 135
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Telex : WOOSNG K23398
Fax. : (02) 585-1461

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Telex : YOU ONE K22181
Fax. : (02) 754-8521

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Telephone : (02) 323-0041

Il Sung Construction Co., Ltd.
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Telephone : (02) 392-8456/9

Il Sin Promotion Construction Co., Ltd.
Add. : 1605-7 SeoCho-dong, KangNam-gu, Seoul 135
Telephone : (02) 568-0251

Il Woo Construction Co., Ltd.
Add. : San 28-6 Bun-dong, DoBong-gu, Seoul 132
Telephone : (02) 982-6800

Central Mill Supply Co., Ltd.
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Telex : K24953
Fax. : Seoul 755-1837

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Telex : K23105

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Telex : CHINHNG K27353
Fax. : (02) 752-9017

Kolon Construction Co., Ltd.
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Telex : KOLON K26205

Pacific Construction Co., Ltd.
Add. : 46-1 DoWha-dong, MaPo-gu, Seoul 121
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Telex : PACICOM K27527
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Fax. : (02) 553-8724

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Telex : HALLAJA K25214
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