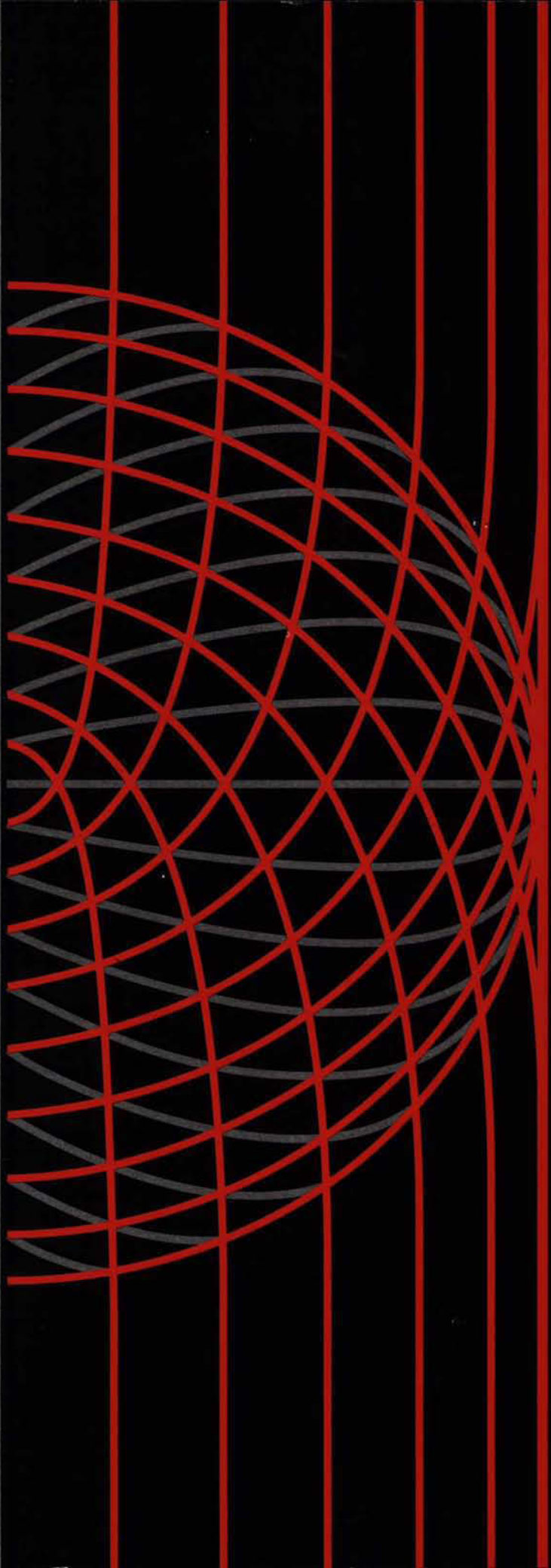
Plumbing Products

INDUSTRY PROFILE



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I N D U S T R Y P R O F I L E

1990–1991

PLUMBING PRODUCTS

FOREWORD

In a rapidly changing global trade environment, the international competitiveness of Canadian industry is the key to growth and prosperity. Promoting improved performance by Canadian firms in the global marketplace is a central element of the mandates of Industry, Science and Technology Canada and International Trade Canada. This Industry Profile is one of a series of papers in which Industry, Science and Technology Canada assesses, in a summary form, the current competitiveness of Canada's industrial sectors, taking into account technological, human resource and other critical factors. Industry, Science and Technology Canada and International Trade Canada assess the most recent changes in access to markets, including the implications of the Canada-U.S. Free Trade Agreement. Industry participants were consulted in the preparation of the profiles.

Ensuring that Canada remains prosperous over the next decade and into the next century is a challenge that affects us all. These profiles are intended to be informative and to serve as a basis for discussion of industrial prospects, strategic directions and the need for new approaches. This 1990–1991 series represents an updating and revision of the series published in 1988–1989. The Government will continue to update the series on a regular basis.

Michael H. Wilson
Minister of Industry, Science and Technology
and Minister for International Trade

Structure and Performance

Structure

The plumbing products industry comprises manufacturers of a wide variety of plumbing products, primarily for residential housing (including both new construction and renovation) as well as for commercial, institutional and industrial buildings. The products of these manufacturers fall into five subsectors: acrylic and fibreglass plumbing fixtures; vitreous china fixtures; faucets; plumbing fixtures made of materials other than acrylic and vitreous china; and a wide range of other plumbing products such as toilet seats, shower doors, floor drains, roof drains, decorative fountains, water purifiers and repair/replacement parts. Plumbing pipes, tubes and fittings are not included in this profile; instead, they are discussed in other industry profiles according to the material from which they are made — see *Ferrous Foundries*, *Non-Ferrous Semi-Fabricated Metal Products* and *Plastic Products*. Also, domestic water heaters are described in a related profile entitled *Heating Equipment*.

In 1990, the Canadian plumbing products industry consisted of 121 establishments located primarily in Ontario and Quebec. Approximately 8 900 people were employed by companies producing plumbing products. Figure 1 shows the distribution of employment in this industry among the five subsectors in 1990.

Plumbing products firms, ranked by the number of employees, reveal three very large manufacturers, each employing over 1 000 people. Emco, which is more than 50 percent Canadian-owned, is the largest firm in the industry. Crane and American-Standard, both U.S.-owned, are the next two largest manufacturers. Collectively, these three

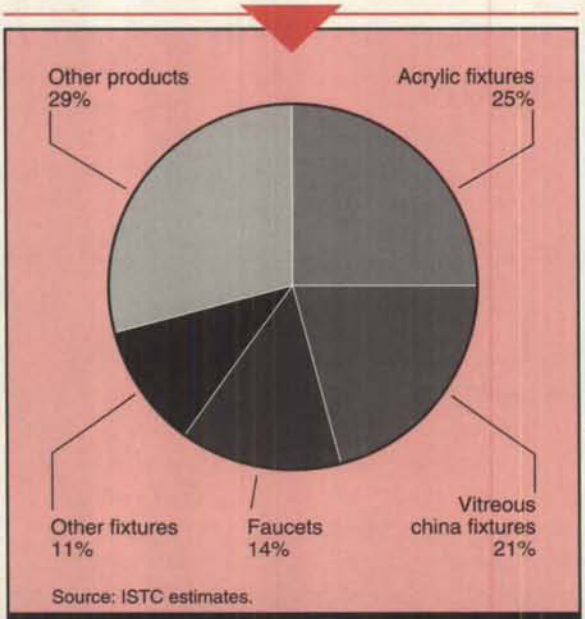


Figure 1 — Industry Employment by Subsector, 1990

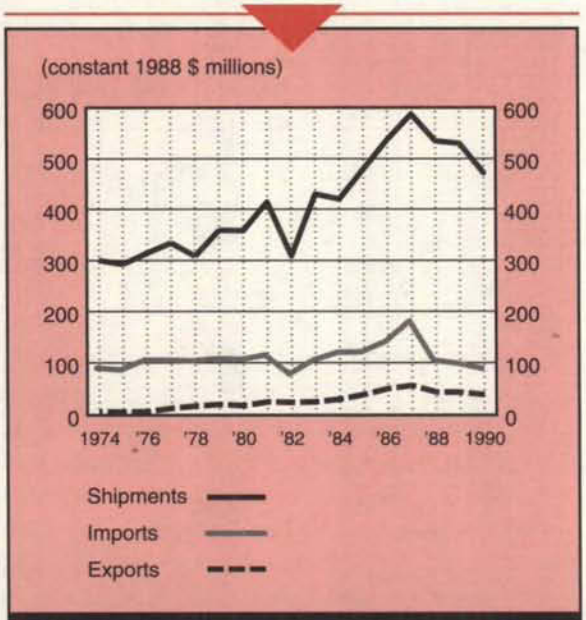


Figure 2 — Total Shipments, Imports and Exports

companies operate 11 factories across Canada and employ an estimated 35 percent of the industry's work force. Six large firms each employ 100 to 1 000 people; about 50 medium-sized firms each employ 20 to 99 people; and about 50 small producers each employ fewer than 20 people.

A significant proportion of the Canadian plumbing products companies are foreign-owned. Twenty-three subsidiaries of foreign-owned firms (21 American and two European) employ 45 percent of the industry's work force and operate 40 medium-sized to large plants across the country. Many of the foreign-owned subsidiaries now in Canada were established many years ago to bypass high import tariffs and to manufacture products similar to those of their parent company for the Canadian market.

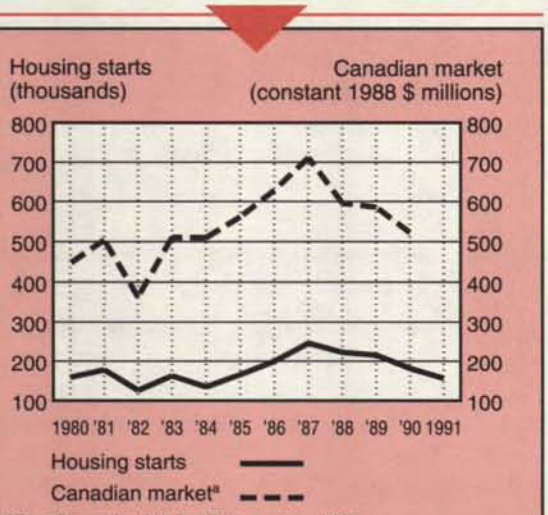
In 1990, the Canadian industry had shipments worth $538 million. Exports were valued at nearly $44 million and imports were worth nearly $101 million. The Canadian market amounted to $595 million, of which about one-sixth consisted of imports, mainly from the United States. Figure 2 illustrates real growth of shipments, imports and exports in constant 1988 dollars.

The Canadian plumbing products industry purchases a wide variety of raw materials, components and parts. Major purchases include ceramic clay, plastic resins, fibreglass, acrylic sheets, steel plates, copper and brass as well as various components and accessories such as pumps, washers and seals. Most of these products used to manufacture plumbing products are obtained from Canadian suppliers.

The majority of Canadian manufacturing plants serve the domestic market only. Plumbing products are usually sold through wholesalers, who in turn supply the plumbing retailers and contractors. Most plumbing products are installed by professional plumbers and contractors who purchase from the plumbing retailers. To a much lesser extent, plumbing products are installed by individual consumers, who purchase from home centre chains and plumbing products retailers.

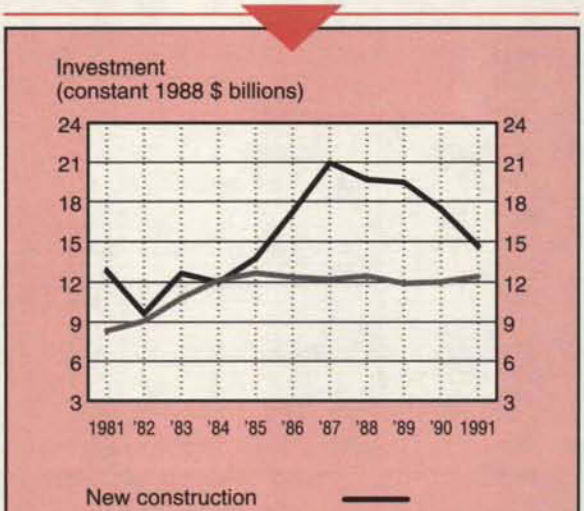
Supplying the new construction and the renovation residential markets involves accommodating a wide variety of consumer preferences. In order to provide a full product line, most larger manufacturers produce a broad range of products in various price categories. Smaller producers tend to specialize in narrower segments of the market such as acrylic bathroom fixtures, toilet seats, floor drains and stainless steel sinks. Canadian manufacturers of specialty and standard products have responded quickly to changes in consumer demand.

Canadian manufacturers of vitreous china plumbing fixtures, metallic bathware and faucets operate older plants, while producers of the recently popular acrylic bathroom fixtures tend to have more modern facilities. In most cases, Canadian plants other than those making acrylic fixtures are smaller than comparable manufacturers in the United States and in other countries that export to Canada.



[a]Canadian market data for 1991 are not available.
Sources: ISTC estimates for Canadian market data; and *Housing Starts and Completions*, Statistics Canada Catalogue No. 64-002, monthly, for data on housing starts up to 1988, and Canada Mortgage and Housing Corporation for data after 1988.

Figure 3 — Housing Starts and Canadian Market for Plumbing Products



Source: Statistics Canada.

Figure 4 — Expenditures on Housing

Imports can be grouped into three basic categories: products brought into Canada by multinational manufacturers and large wholesalers to complete their product lines; high-style items such as European sinks and faucets; and products such as vitreous china fixtures, toilet seats and brass valves that are produced in newly industrialized countries (NICs). The majority of Canadian exporters are medium-sized manufacturers making specialty or niche products such as acrylic fixtures, stainless steel sinks and faucets as well as floor and roof drains.

Performance

The demand for plumbing products is highly cyclical, with its two principal determinants being the construction of new residential units and the level of activity in home renovation. These two markets account for 70 percent of the demand for plumbing products. To a much lesser extent, market demand is also affected by the level of activity in the construction of commercial, industrial and institutional buildings. Figure 3 shows the relationship between the number of housing starts and the real dollar value of the plumbing products in the Canadian market.

During the 1980s, there were some very slow years for plumbing products manufacturers, especially following the 1981–1982 recession, when fewer than 130 000 housing units were started in 1982. The most active year in the Canadian market during the 1980s for residential construction was 1987 with 246 000 housing starts, the highest level of starts since 1976. The increase in the number of housing starts each year from 1984 to 1987 was reflected in growth of the total Canadian market for plumbing products at a real annual rate of 11.8 percent, as measured in constant 1988 dollars. The Canadian market for plumbing products peaked in 1987 at $712 million in constant 1988 dollars. During the same three-year period, domestic shipments of Canadian-made plumbing products grew at a real annual rate of 10.8 percent and in 1987 totalled $531 million in constant 1988 dollars. In 1988, the number of housing starts dropped by 9 percent. In that year, the method used by Statistics Canada for classifying trade data also changed, leading to drastic downward revision of imports. The lower import data resulted in an apparent decline from 1987 to 1988 by approximately 16 percent in real terms in the Canadian market for plumbing products.

The other major demand determinant for plumbing products is the level of activity in housing improvements and renovations. During the 1984 to 1991 period, annual expenditures on residential improvements (renovations and repairs) were about $12 billion. Residential improvements measured in real terms surpassed or approached new construction in 1982, 1984 and 1991 (Figure 4), when housing starts were at low levels. For this market, Canadian manufacturers offer a much wider range of products for improvements than for the new housing market. Considerable emphasis is placed on upscale design, colour selection and ease of installation.

Canadian manufacturers have had to supply a wider range of plumbing products for the bathroom, kitchen and laundry room in keeping with significant changes in Canadian housing designs and lifestyles over the past 30 years. Also during this period, the types of materials used to make plumbing products has expanded as the styling aspect of these products increased.

Prior to 1970, the vast majority of Canadian homes had one bathroom, equipped with an enamelled steel bathtub, a vitreous china toilet and a ceramic or enamelled sink (also called a lavatory). In those days, as is still the case, bathroom fixtures made of these materials could be manufactured only in factories, requiring considerable investment in production equipment. However, the market for plumbing fixtures began to change in the early 1970s when acrylic and gel-coated bathtubs and shower stalls were introduced. In the late 1970s and early 1980s, acrylic bathtubs became well accepted, and acrylic whirlpools also became popular. At the same time, lavatories made of material other than vitreous china and enamelled steel entered the market, using advanced materials such as cultured marble, acrylics, gel-coats, solid surface materials and composites of granite and resin. These "other materials" lavatories are manufactured by a large number of small and medium-sized companies in Canada. Bathrooms, kitchens and laundry rooms became rooms that could be custom-decorated, now that Canadian manufacturers were producing plumbing products in a considerably wider range of colours, styles and materials.

Housing styles also changed as having more than one bathroom per household became much more common. Canadian manufacturers of plumbing products kept pace with this increased demand for fixtures, faucets and other plumbing products. During the 10-year period ending in 1988, the proportion of households having more than one full bathroom rose steadily from 16 to 24 percent. In 1979, only 27 percent of the households had more than one toilet; by 1988, some 39 percent had more than one toilet and 25 percent of those houses had more than two, many of these extra toilets being installed in half-bathrooms. The 1980s introduced a trend toward installing shower stalls. Along with the increase in demand for plumbing products was the growing popularity of new plumbing products such as coloured faucets, washerless faucets, single-lever faucets, hand-held showerheads, acrylic bathtubs with whirlpool jets and attractive laundry tubs. Even the kitchen sink, traditionally a porcelain-enamelled steel or stainless steel unit, is now available from Canadian manufacturers using advanced materials. Bidets, which are gaining acceptance in Canada, are also starting to be manufactured in Canada.

When housing starts peaked in 1987 at 246 000, the Canadian plumbing products industry was operating at full capacity. Unable to fully satisfy demand at that time, Canadian manufacturers and wholesalers elected to import the balance of their requirements, principally from U.S. suppliers. Imports surged in 1987 to a record level of $170 million, but then dropped again in 1988 and continued to drop to $101 million in 1990 as the demand for plumbing products decreased.

With the exception of the decline in imports as a percentage of the Canadian market in 1988, there has been little long-term change in the penetration of the Canadian market for plumbing products by imports, which made up one-fifth to one-quarter of the total during the decade ending in 1988. Over 60 percent of the current imports are faucets and other plumbers' brass items. Toilet bowls and tanks are the next largest group, accounting for about 10 percent of all imports of plumbing products.

Plumbing products are also required for installation in commercial, industrial and institutional buildings. Canada's service industries experienced a significant increase in the 1970s and 1980s, resulting in a proliferation of highrise office buildings and low-rise industrial malls. These units created a demand for better-quality plumbing fixtures than had previously existed in more traditional manufacturing plants. While the large Canadian manufacturers produce different style products for this market segment, several small companies have also entered this market with their niche products.

Throughout most of the 1970s and 1980s, Canadian manufacturers of plumbing products maintained more than three-quarters of the domestic market for plumbing products. From 1983 to 1988, exports grew by 14.1 percent annually in real or constant dollar terms, peaking in 1987 at $56 million in constant 1988 dollars or about one-tenth of shipments. In 1987, imports of about $181 million (constant 1988 dollars) captured approximately one-quarter of the Canadian market valued at about $712 million. The average annual real growth rate for imports over the period from 1973 to 1988 was 2.8 percent. Both exports and imports declined annually thereafter. Imports constituted about 17 percent of the Canadian market from 1988 to 1990 whereas exports dropped to 8.2 percent of shipments during the same period.

In contrast with the peak year of 1987, constant 1988 dollar shipments fell from $587 million to $472 million by 1990 and export markets shrunk from $56 million to $39 million. Imports were severely curtailed from $181 million in 1987 to $89 million in 1990, reflecting a decline in the Canadian market from $712 million in 1987 to $522 million in 1990.

Strengths and Weaknesses

Structural Factors

The distribution of plumbing products within Canada is dominated by four large plumbing wholesalers: Crane, Emco, Ideal and Westburne. Over the past decade, these large wholesalers have bought out many small independents, while the remaining ones formed buying groups to benefit from volume rebates. These Canadian wholesalers are structured to serve the entire country. In contrast, most wholesalers in the United States are considerably smaller and face a large number of competitors within each regional market. Canadian manufacturers therefore have relatively easier access to a much larger market. At the same time, it is much more critical for Canadian manufacturers to remain as preferred suppliers to each Canadian wholesaler than would be the case if they were selling in the U.S. market.

Only 10 companies in Canada make vitreous china plumbing fixtures and faucets, mainly because the start-up production of these products requires considerable capital investment. The cost of model changes is also high because of the expense of new dies and moulds and because significant input is required from both skilled craftsmen and skilled technicians. These industries compete well domestically on high-volume models, although they experience keen competition from imports, especially in the renovation market, where customers demand a broader range of designer plumbing fixtures and faucets.

On the other hand, over 30 companies in Canada make acrylic bathroom fixtures, including bathtubs, shower stalls and whirlpool baths. These domestic manufacturers, who experience minimal competition from foreign manufacturers, supply regional markets because initial production start-up costs are low and transportation costs are high. Notwithstanding transportation costs, about half a dozen companies in Canada sell acrylic bathware nation-wide, even though their plant or plants may be located in just one province. These few companies overcome the high transportation cost for such lightweight, bulky items by completing truckloads with some of their other high-value plumbing products.

Trade-Related Factors

The United States is Canada's major trading partner for plumbing products. In 1990, some 92.4 percent of Canada's exports were shipped to that country. Other destinations of Canadian plumbing products were the European Community (EC) with 3.8 percent, Asia with 1.6 percent and other countries with 2.2 percent. In the same year, 75.2 percent of Canada's imports originated in the United States, with 11.2 percent of imports coming from the EC, 6.5 percent from Asia and 7.0 percent from other countries.

Almost all plumbing products entering Canada from the United States were assessed a tariff set at about 6.8 percent in 1992. Under the Canada-U.S. Free Trade Agreement (FTA), which was implemented on 1 January 1989, most tariff rates are declining in 10 annual, equal steps to reach zero on 1 January 1998. U.S.-made faucets, however, paid a duty of only 2 percent in 1992, which was eliminated under the FTA in five annual, equal steps, reaching zero on 1 January 1993.

For most Canadian manufacturers of plumbing products, the 10-step tariff phase-out period provides sufficient time to gradually adjust their production operations to the increased competitiveness of a more liberalized market. The Canadian manufacturers of faucets, in view of the five-step tariff phase-out, have modernized their production processes and facilities at a much faster rate.

About one-quarter of Canada's imported plumbing products come from countries other than the United States. Plumbing products from countries having Most Favoured Nation (MFN) status, such as EC members and Japan, enter Canada at a duty rate of about 11 percent. Comparable products from developing countries, especially Mexico, are levied a General Preferential Tariff (GPT) ranging from zero to 7.5 percent.

Table 1 shows the 1992 tariff rates assessed on selected foreign-made plumbing products entering Canada. With three-quarters of the imported plumbing products coming from the United States, the tariffs having the greatest impact on Canadian plumbing manufacturers are those on U.S.-made products.

Table 1 — Canadian Tariffs on Selected Plumbing Products, 1992

(percent)

	FTA	MFN	GPT
Vitreous china fixtures	7.6	11.4	free to 7.5
Acrylic fixtures	7.6	11.4	7.5
Metallic fixtures	6.1 to 7.6	10.2 to 11.4	5.0
Faucets	2.0	9.2	6.5

Source: Revenue Canada, Customs and Excise.

On 12 August 1992, Canada, Mexico and the United States completed the negotiation of a North American Free Trade Agreement (NAFTA). The Agreement, when ratified by each country, will come into force on 1 January 1994.

The NAFTA will phase out tariffs on virtually all Canadian exports to Mexico over 10 years, with a small number being eliminated over 15 years. The NAFTA will also eliminate most Mexican import licensing requirements and open up major government procurement opportunities in Mexico. It will also streamline customs procedures, and make them more certain and less subject to unilateral interpretation. Further, it will liberalize Mexico's investment policies, thus providing opportunities for Canadian investors. Most current exports from Mexico are ceramic bathroom fixtures, and with their established plants, these exports are expected to continue. Exports to Mexico are currently at a low level and NAFTA may provide some stimulus.

Additional clauses in the NAFTA will liberalize trade in a number of areas including land transportation and other service sectors. The NAFTA is the first trade agreement to contain provisions for the protection of intellectual property rights. The NAFTA also clarifies North American content rules and obliges U.S. and Canadian energy regulators to avoid disruption of contractual arrangements. It improves the dispute settlement mechanisms contained in the FTA and reduces the scope for using standards as barriers to trade. The NAFTA extends Canada's duty drawback provisions for two years, beyond the elimination provided for in the FTA, to 1996 and then replaces duty drawback with a permanent duty refund system.

Canada exports less than one-tenth of its production of plumbing products, and in 1990 over 92.4 percent of this amount was sent to the United States. Upon entering the United States, most plumbing products face a MFN rate of 2 to 5 percent, but Canadian-made faucets were assessed only 0.8 percent under the FTA. As with U.S. exports to Canada, the FTA eliminated the U.S. duty on Canadian-made faucets on 1 January 1993 and will eliminate the duty on almost all other Canadian-made plumbing products by 1 January 1998. Table 2 shows the 1992 tariffs applied on Canadian-made plumbing products shipped to foreign markets.

Table 2 — Tariffs Assessed by Selected Countries on Canadian-made Plumbing Products, 1992

(percent)

	United States	Mexico	European Community	Japan
Vitreous china fixtures	4.3	20	10	free
Acrylic fixtures	3.8	20	8.4	5.8
Metallic fixtures	1.8 to 2.3	15 to 20	5.3 to 7	free to 4.6
Faucets	0.8	15	4.6	free

Source: External Affairs and International Trade Canada.

The plumbing products industry in Canada manufactures products that conform to Canadian Standards Association (CSA) national plumbing standards and to other national building and fire codes. The U.S. market, however, has several organizations that generate their own standards codes for plumbing products. Therefore, like their U.S. competitors, Canadian manufacturers, as well as any other exporters trying to penetrate the U.S. market, must go through the expense of product testing and approvals for the standards organization that is recognized in each region.

Prior to 1991, the Canadian and American national standards included different flow-rate standards for faucets. In order to sell in each other's markets, Canadian and American manufacturers had to accommodate these variations by adding different models to their production lines. However, in 1991, the elements of the CSA standard were harmonized with those of the U.S. Underwriter's Laboratory (UL) standard, and most faucets produced in the United States became acceptable in the Canadian market. Canadian-made faucets meeting the previous CSA standard will still comply, but Canadian manufacturers wanting to supply water-saving faucets will have to redesign them. The net result of the changes in the CSA standard is that Canadian manufacturers of faucets are having to retool many of their production lines in order to continue making faucets for the Canadian market and also to supply the U.S. market, whereas U.S. manufacturers can now sell in the Canadian market without the added cost of retooling.

Trade in plumbing products between Canada and Europe is minimal. Relatively high tariff rates are overshadowed by non-tariff barriers (NTBs), mainly standards. European companies supply only about 5 percent of the Canadian plumbing products market, while Canadian manufacturers have shown little interest in European markets fragmented by national standards. Prior to 1980, Canadian plumbing manufacturers seldom exported more than 0.5 percent of total industry production to Europe. However, there are efforts under way to define a single common standard for all European plumbing products as part of the economic unification of the EC after 1992 (Europe 1992). A few Canadian manufacturers have started the process of redesigning and retooling to comply with these emerging standards.

Technological Factors

The level of production technology within the plumbing products industry varies widely with each subsector.

The technology to produce acrylic bathtubs, sinks, shower stalls and whirlpool baths is relatively inexpensive and readily available. The low cost for start-up production equipment is one of the many reasons why so many Canadian companies are making acrylic bathware. During periods when housing starts are at high levels, companies enter this field. However, when

housing starts are at low levels, the competition is much tougher and many companies are forced to discontinue operations.

Canada's few manufacturers of vitreous china plumbing fixtures have a mixture of basic machines and advanced manufacturing technologies in their production processes. For example, significant technological developments in recent years in the casting of ceramic products have occurred mainly in Europe. In addition, new kiln technology has significantly reduced the consumption of fuel, mainly natural gas. New and expensive technologies drastically reduce production time and product set-up costs; a toilet tank can now be cast, enamelled and cured in eight hours, compared with a previous production time of six days. These new technologies are being phased into use in some Canadian and U.S. plants as the manufacturers seek reduced unit production costs to remain competitive.

In order to remain competitive, faucet manufacturers are introducing many types of advanced manufacturing technologies (AMTs) throughout their production processes. They are installing flexible manufacturing centres, automated assembly systems and computerized metal-working machinery. Much of their new equipment is custom-designed and therefore expensive. They are also introducing new technology into the product itself; for example, some Canadian-made faucets for installation in public washrooms now have electronically activated sensors and timers.

The two remaining subsectors, fixtures made of other materials and other plumbing products, consist of a large number of medium-sized and small manufacturers. Most use well-established rather than advanced manufacturing technology. These companies have limited resources for investment in production technology and tend to purchase readily available general-purpose machines, which are then used to produce their niche products. A few of the medium-sized companies, especially those making sinks from advanced plastic resins, have chosen to enter into agreements with European companies to manufacture under licence. This has necessitated the purchase of specialized production equipment.

There is considerable product design work in Canada, as the manufacturers constantly work to maintain their position in their respective niches of the plumbing products market. In the product design phase, there is minimal use of computer-aided design (CAD), usually by the large manufacturers only and, in the production phase, there is almost no implementation of integrated computer-aided design and computer-aided manufacturing (CAD/CAM) technology.

Other Factors

With respect to working conditions, the manufacturers of plumbing products are involved in programs to ensure that production work is done in a safe environment. These manufacturers are implementing Workplace Hazardous Materials Information System (WHMIS) programs to ensure that workers are fully aware of the proper handling of hazardous materials. In addition, the manufacturers have installed appropriate environmental controls to ensure that the workplace is safe.

Most production processes for plumbing products have minimal environmental impact and, as such, are not subject to extensive new regulations. Vitreous china fixture producers and the brass foundries consume significant volumes of energy when operating their kilns and furnaces. However, both subsectors are working to reduce their energy consumption by installing better control systems and, in some instances, by purchasing more efficient kilns and furnaces.

Evolving Environment

In 1991, Canada Mortgage and Housing Corporation (CMHC) recorded that the number of housing starts fell to 156 197 units. Seasonally adjusted data for the first five months of 1992 indicate 167 000 starts on an annual basis and CMHC projects 1993 starts at 187 000. These figures suggest there will be a slight increase in the demand for plumbing products in the near term.

In 1988, when the current decline in housing starts began, Canadian manufacturers might have considered using their excess capacity to increase exports to the United States. However, the U.S. new housing market reached its peak a year earlier with about 1.75 million housing starts and has also steadily declined since then to only 1.18 million starts in 1990. Hence, instead of trying to increase their exports to the United States, most Canadian manufacturers of plumbing products are attempting to defend their home market, where they are experiencing considerably increased competition from U.S. manufacturers. While declines in new housing construction are being partially offfset by growth in home renovation, excess manufacturing capacity for plumbing products is expected to exist in both countries well into the early 1990s. This will lead to increased competition on both sides of the border.

Significant changes in Canada's demographic trends, particularly in living arrangements and net population increases, affect the demand for plumbing products. According to the Population Projections Section at Statistics Canada, an increasing number of people are choosing to live alone and one-parent families are on the rise. At the same time, the number of immigrants to Canada has almost doubled in the past few years and is targeted to remain at high levels for the next five years. In addition, factors such as rural/urban shifts, interprovincial family movement and housing style preferences also affect the demand for housing. At first glance, these

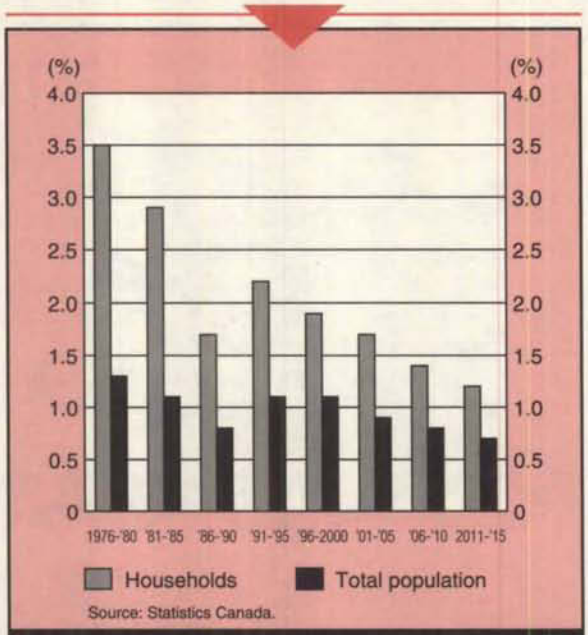


Figure 5 — Growth Rate in Households and Population (%)

factors should initially lead to significant increases in new housing. Of greater consequence, however, is the replacement of Canada's baby boom generation by the baby bust generation in the prime ages for household formation. Statistics Canada, using its "Series C medium growth rate" model, projects that the number of households in Canada will be between 12.1 million and 13.6 million by 2011, up from 9 million in 1986. The annual rate of household growth from 1991 to 2011 will be in the range of 1.2 to 2.2 percent, compared with 3.5 percent growth from 1976 to 1980 and 2.9 percent from 1981 to 1985 (Figure 5).

Increasingly, water shortages are becoming a problem for Canadian and U.S. municipalities. In order to partially solve the problem, water conservation products are being introduced, encouraged and even legislated. A good example is the 1.6 U.S. gallon (6 litre) flush toilets that are now legislated in several states. Previously, a 3.5 U.S. gallon (13 litre) flush toilet was the industry standard. Similar legislation and public pressure for water-saving devices, as well as the industry's desire to introduce new products, has led to improved designs for plumbing products. Water-saving features are now found in showerheads, clothes washers, dishwashers, flush valves for public urinals and toilets, and electronically activated and timed faucets. Moreover, Canadian and U.S. municipalities use treated potable water for non-drinking purposes. This practice is definitely not the case in many other countries around the world. It is quite likely that new North American housing will eventually require separate water supply lines, which may lead to an increased demand for additional types of plumbing products.

Provincial home buying assistance programs are another positive factor in stimulating the demand for new housing and consequently for plumbing products. Ontario and Quebec introduced programs in 1990. In addition, in 1992 the federal government allowed some Registered Retirement Savings Program (RRSP) funds to be used and lowered the down payment requirement to 5 percent of the purchase price of a home.

With the elimination of duty rates on faucets under the FTA in 1993, Canadian manufacturers of faucets are currently investing heavily to maintain and improve their competitiveness both at home and abroad. Similarly, the manufacturers of metal plumbing products and vitreous china fixtures are also investing heavily, although the rate of duty on these products will not reach zero until 1998. Unlike the other subsectors, Canadian manufacturers of acrylic bathware do not require high levels of investment in new production equipment in order to remain competitive.

By 1990, the EC's share of Canadian plumbing products exports had fallen to 3.8 percent. Therefore, even with the changing nature of the European markets following the integration of the EC economies after 1992 and the current political changes affecting Eastern Europe and the former Soviet Union, it is expected that Canadian exports of plumbing products to those markets will remain relatively insignificant.

Improved productivity, especially in the production of vitreous china fixtures, faucets and certain niche plumbing products, will be necessary to meet competition from low-wage countries and from foreign manufacturers having better economies of scale. These market pressures will force Canadian manufacturers to accelerate the adoption of new technologies and advanced manufacturing systems, where readily available, which in turn should improve the Canadian industry's ability to further exploit opportunities in the U.S. market. Much of the newer production equipment will incorporate advanced manufacturing technology, enabling companies to produce new models.

Competitiveness Assessment

Canadian manufacturers of plumbing products are highly competitive domestically and show a strong ability to adapt to changing market conditions. For the past 15 years, in spite of swings in annual housing starts well in excess of percentage changes in the general business cycle, Canadian plumbing products manufacturers have maintained their share of about 75 to 80 percent of the Canadian market. To remain competitive,

Canadian manufacturers will have to continue their well-planned and well-executed product development programs and technology acquisition activities. Continued emphasis on service and quality will also be major factors in their success.

Since the Canadian and U.S. housing markets are both at low levels and are expected to remain at modest levels for several years, Canadian manufacturers anticipate considerable pressure from domestic as well as from U.S. manufacturers. However, Canadian manufacturing plants should remain competitive, as they are quite flexible and therefore capable of short-run production with rapid product change-over times. Canadian manufacturers will continue to be competitive, supplying a wide range of plumbing products from low-end, mass-produced units to high-end, deluxe designer units.

Certain Canadian manufacturers, especially those that have concentrated on niche plumbing products, are well established in the Canadian market and are becoming increasingly successful in the U.S. market. Prior to 1980, exports traditionally accounted for less than one-twentieth of Canadian production of plumbing products but, during the past decade, exports have increased to about one-tenth of total production. As the provisions of the FTA and NAFTA are implemented and as tariffs are slowly phased out, increased trade may take place.

Restructuring in some of the subsectors is anticipated, as many manufacturers are investing in more efficient production technology and support systems. The faucet manufacturers are currently changing all of their models in order to comply with the new CSA plumbing codes. Acrylic bathware manufacturers may decrease in number, as the Canadian market may be unable to support so many regional suppliers.

Plumbing products manufacturers are currently producing low-flush toilets and water-conserving showerheads. As society becomes more aware of the need to conserve water, additional water-saving devices will be manufactured by Canadian companies.

The Canadian plumbing products industry is dynamic, with many new products entering the market to satisfy a full range of consumer demands, from basic functional units to elaborate decorative fixtures. Canadian manufacturers are expected to continue to meet these demands, as they have already demonstrated an ability to be flexible, innovative and competitive.

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PRINCIPAL STATISTICS[a]

	1983	1984	1985	1986	1987	1988	1989	1990
Establishments	N/A	116	113	121	120	128	123	121
Employment	N/A	6 700	5 900	7 700	10 100	9 700	9 100	8 900
Shipments								
($ millions)	337	344	412	481	550	535	574	538
(constant 1988 $ millions)	430	420	479	537	587	535	530	472

[a]ISTC estimates. For complete industry statistics, see *Rubber and Plastic Products Industries*, Statistics Canada Catalogue No. 33-250, annual (SIC 1699, other plastic products industries not elsewhere classified); *Fabricated Metal Products Industries*, Statistics Canada Catalogue No. 41-251, annual (SIC 3091, metal plumbing fixtures and fittings industry); and *Non-Metallic Mineral Products Industries*, Statistics Canada Catalogue No. 44-250, annual (SIC 3511, clay products industry (from domestic clay), and SIC 3512, clay products industry (from imported clay)). Plumbing products are manufactured in these industries.

N/A: not available

TRADE STATISTICS

	1983	1984	1985	1986	1987	1988[d]	1989[d]	1990[d]
Exports[a]								
($ millions)	20	25	34	45	53	44	47	44
(constant 1988 $ millions)	25	30	39	50	56	44	43	39
Domestic shipments[b]								
($ millions)	317	319	378	436	497	491	527	494
(constant 1988 $ millions)	405	390	440	487	531	491	487	433
Imports[c]								
($ millions)	83	98	104	126	170	105	107	101
(constant 1988 $ millions)	105	120	121	141	181	105	99	89
Canadian market[b]								
($ millions)	400	417	482	562	667	596	634	595
(constant 1988 $ millions)	510	510	561	628	712	596	586	522
Exports (% of current $ shipments)	5.9	7.3	8.3	9.4	9.6	8.2	8.2	8.2
Imports (% of current $ Canadian market)	20.8	23.5	21.6	22.4	25.5	17.6	16.9	17.0

[a]See *Exports by Commodity*, Statistics Canada Catalogue No. 65-004, monthly.

[b]ISTC estimates from various SICs and trade aggregates.

[c]See *Imports by Commodity*, Statistics Canada Catalogue No. 65-007, monthly.

[d]It is important to note that data for 1988 and after are based on the Harmonized Commodity Description and Coding System (HS). Prior to 1988, the shipments, exports and imports data were classified using the Industrial Commodity Classification (ICC), the Export Commodity Classification (XCC) and the Canadian International Trade Classification (CITC), respectively. Although the data are shown as a continuous historical series, users are reminded that HS and previous classifications are not fully compatible. Therefore, changes in the levels for 1988 and after reflect not only changes in shipment, export and import trends, but also changes in the classification systems. It is impossible to assess with any degree of precision the respective contribution of each of these two factors to the total reported changes in these levels.

SOURCES OF IMPORTS[a] (% of total value)

	1983	1984	1985	1986	1987	1988[b]	1989[b]	1990[b]
United States	86.0	76.0	65.0	70.0	65.0	74.0	70.0	75.3
European Community	6.0	7.0	18.0	16.0	20.0	12.0	10.7	11.2
Asia	4.0	16.0	17.0	10.0	12.0	10.0	8.7	6.5
Other	4.0	1.0	–	4.0	3.0	4.0	10.6	7.0

[a]See *Imports by Commodity*, Statistics Canada Catalogue No. 65-007, monthly.

[b]Although the data are shown as a continuous historical series, users are reminded that HS and previous classifications are not fully compatible. Therefore, changes in the levels for 1988 and after reflect not only changes in import trends, but also changes in the classification systems.

DESTINATIONS OF EXPORTS[a] (% of total value)

	1983	1984	1985	1986	1987	1988[b]	1989[b]	1990[b]
United States	78.0	73.0	84.0	90.0	92.0	87.0	91.3	92.4
European Community	8.0	6.0	4.0	4.0	3.0	8.0	5.0	3.8
Asia	–	3.0	2.0	2.0	2.0	2.0	1.4	1.6
Latin America	5.0	6.0	6.0	3.0	2.0	2.0	–	–
Other	9.0	12.0	4.0	1.0	1.0	1.0	2.3	2.2

[a]See *Exports by Commodity*, Statistics Canada Catalogue No. 65-004, monthly.

[b]Although the data are shown as a continuous historical series, users are reminded that HS and previous classifications are not fully compatible. Therefore, changes in the levels for 1988 and after reflect not only changes in export trends, but also changes in the classification systems.

REGIONAL DISTRIBUTION[a] (average over the period 1986 to 1988)

	Atlantic	Quebec	Ontario	Prairies	British Columbia
Establishments (% of total)	1	19	75	3	2
Employment (% of total)	1	18	75	4	2
Shipments (% of total)	1	15	78	4	2

[a]ISTC estimates.

MAJOR FIRMS

Name	Country of ownership	Location of major plants
American-Standard (Division of Wabco Standard Trane Inc.)	United States	Cambridge, Ontario Toronto, Ontario
Bow Plastics Ltd.	Canada	Granby, Quebec
Canplas Industries Ltd.	France	Barrie, Ontario
Crane Canada Inc.	United States	Saint-Jean-sur-Richelieu, Quebec Trenton, Ontario Stratford, Ontario Brantford, Ontario Coquitlam, British Columbia
Emco Limited	Canada	London, Ontario Midland, Ontario Cambridge, Ontario Wallaceburg, Ontario
Kohler Ltd.	United States	Cornwall, Ontario Armstrong, British Columbia
LeHage Industries (1990) Inc.	Canada	Scarborough, Ontario Saint-Laurent, Quebec
Mirolin Industries	Canada	Toronto, Ontario
Modern Fibreglass (Division of MAAX Inc.)	Canada	Sainte-Marie, Quebec Tring-Jonction, Quebec
Spartan of Canada (Division of Shostal Ltd.)	Canada	Lachine, Quebec Montreal, Quebec

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