

Heating Equipment

HD9505

.C3

I5

1990-91

H2 c.2

IC



Industry, Science and
Technology Canada

Industrie, Sciences et
Technologie Canada

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

Business Service Centres / International Trade Centres

Industry, Science and Technology Canada (ISTC) and International Trade Canada (ITC) have established information centres in regional offices across the country to provide clients with a gateway into the complete range of ISTC and ITC services, information products, programs and expertise in industry and trade matters. For additional information contact any of the offices listed below.

Newfoundland

Atlantic Place
Suite 504, 215 Water Street
P.O. Box 8950
ST. JOHN'S, Newfoundland
A1B 3R9
Tel.: (709) 772-ISTC
Fax: (709) 772-5093

Prince Edward Island

Confederation Court Mall
National Bank Tower
Suite 400, 134 Kent Street
P.O. Box 1115
CHARLOTTETOWN
Prince Edward Island
C1A 7M8
Tel.: (902) 566-7400
Fax: (902) 566-7450

Nova Scotia

Central Guaranty Trust Tower
5th Floor, 1801 Hollis Street
P.O. Box 940, Station M
HALIFAX, Nova Scotia
B3J 2V9
Tel.: (902) 426-ISTC
Fax: (902) 426-2624

New Brunswick

Assumption Place
12th Floor, 770 Main Street
P.O. Box 1210
MONCTON, New Brunswick
E1C 8P9
Tel.: (506) 857-ISTC
Fax: (506) 851-6429

Quebec

Tour de la Bourse
Suite 3800, 800 Place Victoria
P.O. Box 247
MONTREAL, Quebec
H4Z 1E8
Tel.: (514) 283-8185
1-800-361-5367
Fax: (514) 283-3302

Ontario

Dominion Public Building
4th Floor, 1 Front Street West
TORONTO, Ontario
M5J 1A4
Tel.: (416) 973-ISTC
Fax: (416) 973-8714

Manitoba

8th Floor, 330 Portage Avenue
P.O. Box 981
WINNIPEG, Manitoba
R3C 2V2
Tel.: (204) 983-ISTC
Fax: (204) 983-2187

Saskatchewan

S.J. Cohen Building
Suite 401, 119 - 4th Avenue South
SASKATOON, Saskatchewan
S7K 5X2
Tel.: (306) 975-4400
Fax: (306) 975-5334

Alberta

Canada Place
Suite 540, 9700 Jasper Avenue
EDMONTON, Alberta
T5J 4C3
Tel.: (403) 495-ISTC
Fax: (403) 495-4507

Suite 1100, 510 - 5th Street S.W.
CALGARY, Alberta
T2P 3S2
Tel.: (403) 292-4575
Fax: (403) 292-4578

British Columbia

Scotia Tower
Suite 900, 650 West Georgia Street
P.O. Box 11610
VANCOUVER, British Columbia
V6B 5H8
Tel.: (604) 666-0266
Fax: (604) 666-0277

Yukon

Suite 301, 108 Lambert Street
WHITEHORSE, Yukon
Y1A 1Z2
Tel.: (403) 668-4655
Fax: (403) 668-5003

Northwest Territories

Precambrian Building
10th Floor
P.O. Bag 6100
YELLOWKNIFE
Northwest Territories
X1A 2R3
Tel.: (403) 920-8568
Fax: (403) 873-6228

ISTC Headquarters

C.D. Howe Building
1st Floor East, 235 Queen Street
OTTAWA, Ontario
K1A 0H5
Tel.: (613) 952-ISTC
Fax: (613) 957-7942

ITC Headquarters

InfoExport
Lester B. Pearson Building
125 Sussex Drive
OTTAWA, Ontario
K1A 0G2
Tel.: (613) 993-6435
1-800-267-8376
Fax: (613) 996-9709

Publication Inquiries

For individual copies of ISTC or ITC publications, contact your nearest Business Service Centre or International Trade Centre. For more than one copy, please contact

For Industry Profiles:

Communications Branch
Industry, Science and Technology
Canada
Room 704D, 235 Queen Street
OTTAWA, Ontario
K1A 0H5
Tel.: (613) 954-4500
Fax: (613) 954-4499

For other ISTC publications:

Communications Branch
Industry, Science and Technology
Canada
Room 208D, 235 Queen Street
OTTAWA, Ontario
K1A 0H5
Tel.: (613) 954-5716
Fax: (613) 954-6436

For ITC publications:

InfoExport
Lester B. Pearson Building
125 Sussex Drive
OTTAWA, Ontario
K1A 0G2
Tel.: (613) 993-6435
1-800-267-8376
Fax: (613) 996-9709

Canada

1990-1991

HEATING EQUIPMENT

INDUSTRY, SCIENCE AND
TECHNOLOGY CANADA
LIBRARY

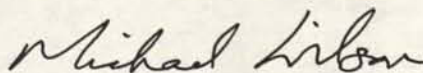
NOV 25 1991

FOREWORD

BIBLIOTHEQUE
INDUSTRIE, SCIENCES ET
TECHNOLOGIE CANADA

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 industry comprises companies primarily engaged in manufacturing a wide range of comfort heating equipment. The range includes warm air furnaces, hydronic heating equipment (hot water heating units for space heating but excluding power boilers), unit heaters, space heaters, solid fuel (generally wood) stoves and fireplaces, metal vents and chimneys, combination heating and cooling units (except heat pumps), fans and domestic water heaters. Warm air furnace production accounts for over 25 percent of the industry's shipments, making it the dominant subsector. Many heating equipment manufacturers also produce air conditioning equipment and related accessories. Data used in this profile apply only to heating equipment production activity in Canada.

In 1988, there were 155 establishments in the heating equipment sector, with direct employment of approximately

6 400 people. In that year, total Canadian shipments were valued at \$804 million. Exports totalled \$90.3 million (11 percent of shipments) and imports were \$164 million, or 19 percent of the Canadian market of \$878 million.

The industry is concentrated in Ontario, which accounts for 50 percent of the establishments, 51 percent of the employment and 67 percent of the shipments. Quebec has 19 percent of the total number of Canadian establishments as well as 19 percent of the industry's employment and 16 percent of industry shipments. The Prairie region accounts for 11 percent of establishments and 10 percent of shipments. While British Columbia has 16 percent of the establishments, it reports only 6 percent of the employment and 5 percent of industry shipments. The Atlantic provinces have 4 percent of the establishments and account for 2 percent of the shipments.

The eight largest manufacturers in Canada produce over 50 percent of all industry shipments. Six of these firms include warm air furnaces in their product lines. There are



five manufacturers of domestic water heaters; one is among the top eight manufacturers in North America. Approximately 100 manufacturers each have fewer than 20 employees and less than \$1 million in annual sales. One-third of these small companies manufacture solid fuel stoves and fireplaces, metal chimneys and vents. The remaining 50 firms are medium-sized manufacturers of a wide variety of heating equipment. Although most heating equipment manufacturing establishments in Canada are Canadian-owned, U.S. multinational manufacturers dominate the market. Several of these American-owned companies have manufacturing facilities in Canada.

The producers of heating equipment, especially warm air heating equipment, generally manufacture only the sheet metal housings. They then incorporate purchased components into those housings to create the finished products. In some cases, the heat exchange units are also manufactured. The manufacturing operations involve metal shearing, forming, welding, painting and final assembly. Manufacturers purchase parts, such as blowers, motors, electronic controls and thermostats from specialized manufacturers. These components benefit from long production runs and require a high level of technical expertise and skill in their development and production. The Canadian content for heating equipment made in Canada ranges from 60 to 95 percent.

There are three principal markets: original installation, replacement (due to wear or obsolescence), and retrofit (the adding to or upgrading of existing units).

In the original installation market, manufacturers sell directly to large commercial and residential developers; to heating, ventilating and air conditioning (HVAC) distributors and dealers; and to utilities under house brand names. They may also sell to consumers through major retail stores as well as plumbing and hardware chains. For the replacement and retrofit market, the distribution chain is the same but excludes developers. Manufacturers of solid fuel equipment (fireplaces, wood-burning stoves) sell to consumers through a variety of retail outlets.

Performance

New construction is one of the principal determinants of demand for heating equipment. Figure 1 shows the relationship between housing starts and the domestic market for warm air heating equipment. In 1989, the Canadian market for warm air furnaces was \$386 million and housing starts were over 215 000 units.

The retrofit or replacement of heating systems is another major determinant of demand. The lower efficiency units installed from the 1950s to the present have expected life spans of 30 years. The high efficiency units now available



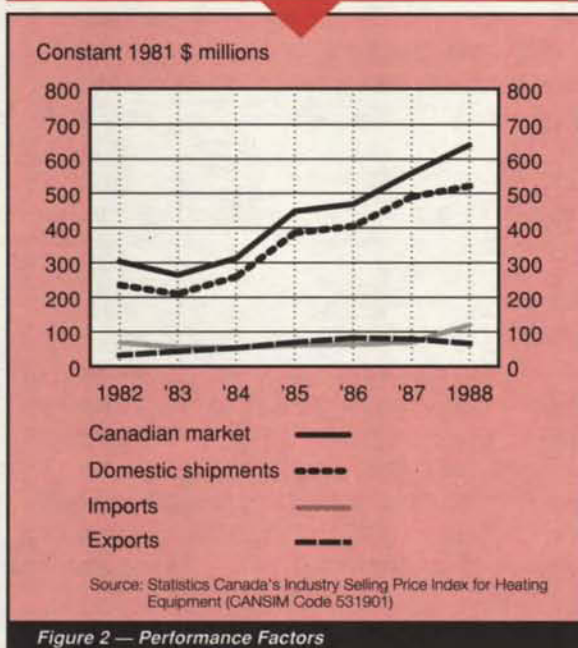
Figure 1—Housing Starts & the Market for Warm Air Furnaces

operate at much lower flue gas temperatures, resulting in the condensation of corrosive liquids. This increases the corrosion rate and reduces the life span to 15 to 20 years.

Although data are not available for the Canadian market, U.S. figures show their replacement market to be 60 percent of total demand. The replacement and retrofit markets were extremely strong from 1980 to 1987, stimulated by the high cost of energy and various incentive programs. Home-owners and commercial and institutional building owners converted from oil-fired heating systems to gas and electric systems. Manufacturers increased the Annual Fuel Utilization Efficiencies (AFUE) of their equipment to levels as high as 96 percent for gas and 86 percent for oil. (AFUE is the real efficiency of a heating appliance over a one-year period).

Preferred energy sources in 1989 were natural gas, 44.3 percent; electricity, 33.2 percent; oil, 17.7 percent; and wood, 3.9 percent. In 1985, the comparable figures were 44.4 percent, 28.1 percent, 21.9 percent and 4.6 percent, respectively. The increased use of electric heating over oil largely reflects the preference of developers and owners of apartment and attached buildings, especially in areas where gas utilities are not available.

Domestic shipments of Canadian-made heating equipment grew rapidly between 1982 and 1987 (Figures 2 and 3). (Because the change to the Harmonized Classification System in 1988 changed the statistical base for exports and imports from previous years, the period 1982 to 1987 is used here for analytical purposes.) This growth was due to the buoyant new-construction market and the growing replacement market. Imports and exports remained constant, after adjustments



for inflation. In 1987, the Canadian market for heating equipment was \$558 million expressed in constant 1981 dollars (for current dollar growth, see the table on page 7). It had increased at a real annual rate of 20 percent from 1983 to 1987, following a decline of 11 percent during 1982 and 1983, caused by the recession. From 1983 to 1987, shipments of Canadian-made heating equipment grew at a real annual rate of 22.3 percent, reaching \$568 million in 1987. Exports (almost 14 percent of shipments in 1987) grew at a real annual rate of 16.3 percent per year, reaching \$79 million. Imports grew at a real annual rate of 6 percent, totalling \$69 million in 1987, over 12 percent of the Canadian market.

Because of the energy crisis, many North Americans tried to offset the high cost of fuel by using solid fuel (wood-burning) heating equipment. This trend resulted in increased production, imports and exports of these products in the early 1980s. There was an unusually high level of heating equipment imports from Asia during the period 1981 to 1983. This was the result of large shipments of low-priced, low-quality stoves from that region. Because of the poor performance of this equipment under Canadian conditions, Asian imports ceased. Canadian-made equipment and imports of higher quality Scandinavian equipment are now supplying this market although the demand is decreasing due to the moderation of oil and gas prices. However, sustained increases in petroleum prices could bring renewed interest in the use of solid fuel heating equipment.

Strengths and Weaknesses

Structural Factors

Transportation costs and thus proximity to major population centres are important factors in the manufacture and marketing of heating products such as residential warm air furnaces. As a result, the industry in Canada has grown on a regional basis. Several medium-sized manufacturers in Canada have been successful in serving a regional North American market. Similarly, some regionally based U.S. companies have obtained significant market share in Canada; for example, water heaters manufactured in Nevada and California dominate the market in Western Canada.

Economies of scale are also an important competitive factor. Canadian manufacturers have pursued a variety of strategies to achieve economies of scale, including the purchase of competing companies and the expansion of their markets into the United States. Some Canadian manufacturers have increased plant use and offset the seasonal nature of heating equipment production by adding cooling equipment to their lines. This strategy also enables them to optimize their existing marketing channels by offering a full range of comfort heating and cooling products.

Despite consolidation and rationalization by Canadian companies, the Canadian industry has not yet achieved the economies of scale that are typical of the U.S. industry, given the much smaller Canadian market. While material input costs are comparable, Canadian labour rates and benefits contribute to a higher cost structure in Canada than in many plants in the United States. This limits the Canadian industry's ability to compete, both in Canada and in the United States.

The presence of U.S.-owned subsidiaries in Canada has served to strengthen the competitive position of the Canadian industry. Under arrangements with their parent organizations, these subsidiaries export some products to specific foreign markets, as well as manufacture for the Canadian market. Under these agreements, the plants import certain production parts and components, as well as finished units of those models which they do not manufacture in Canada. The net benefits of this activity are additional exports and import replacement (manufacture in Canada of products that were previously imported).

Trade-Related Factors

Proximity to major U.S. population centres and the similarity in building designs, codes and standards between the United States and Canada make that country Canada's most important export market for heating equipment. In 1987, exports to the United States were \$98 million or 93 percent of

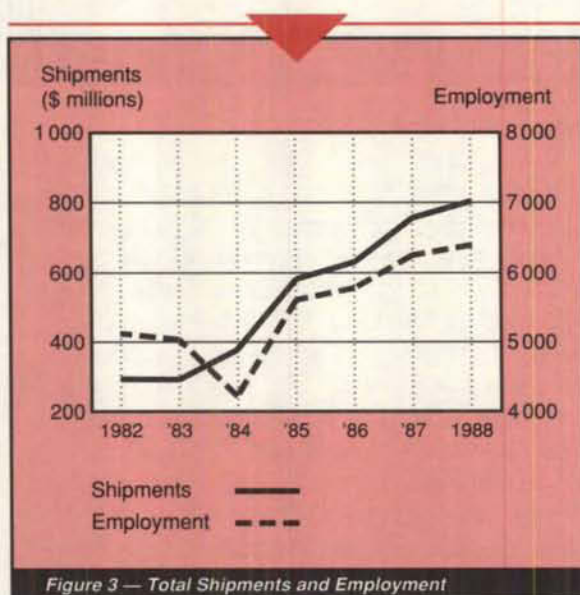


Figure 3 — Total Shipments and Employment

total heating equipment exports. Imports from the United States were \$75 million or about 81 percent of the total.

Canadian Most Favoured Nation tariffs for heating equipment vary from 9.2 to 11.9 percent. Similar U.S. tariffs are 4.2 percent. Under the Canada-U.S. Free Trade Agreement (FTA), the duty on most heating equipment is being phased out in 10 annual, equal steps. European Community tariffs are 4.1 percent for heating equipment.

For this sector, the most important element of the FTA has been the 10-step tariff reduction for most types of heating equipment. This allows time for Canadian companies to prepare for an expanded market and increased competition in their home market. To do this, Canadian manufacturers are updating or replacing aging facilities and equipment and introducing modern production techniques to reduce costs to competitive levels.

In 1987, the Canadian Gas Association (CGA) and the American Gas Association (AGA) introduced a co-ordinated testing and certification program. This program provides procedures for simultaneous testing of gas appliances including furnaces, boilers, water heaters and domestic appliances at one location. It applies to equipment designed for sale and installation in both the United States and Canada. The program has provided significant benefits to Canadian manufacturers exporting to the United States by eliminating inconsistencies and inequities in the approval processes of the two countries. In spite of these improvements, the multitude of local and state building codes continue to present problems for Canadian exporters.

Trade with Great Britain and Central Europe has been very limited because of fundamental differences in their approach to space heating. In those markets, buildings are normally heated by small water heating units that distribute the heat through convection radiators in each room. This type of installation is very expensive compared with a typical North American heating system. In Eastern Europe, centrally located heating units distribute hot water through pipelines to individual homes and other buildings where convection radiators are used in each room. Although there has been little demand in Europe for the forced air technology of North America, the situation may change. Energy conservation demands have brought about steps to increase the insulation and air tightness of buildings. These efforts have introduced related problems with condensation and indoor air quality and could force the re-examination of forced air technology and the subsequent creation of demand for warm air heating equipment. Canadian manufacturers are in a good position to take advantage of this potential market.

Technological Factors

Modern heating technology began to develop between 1920 and 1940 with the increased availability of electricity across the country, the growing use of fuel oil for residential purposes and the beginnings of a natural gas distribution network. Boilers for space and water heating became widely used, and warm air heating using ducts was introduced. Technology developed slowly until the oil crisis of 1974 created increased interest in all issues related to energy. Canadian manufacturers, in conjunction with government laboratories and the utilities, responded to these issues with a number of innovations, including pulse combustion gas furnaces, condensing furnaces and flame retention burners for oil-fired units. These innovations enabled manufacturers to provide gas-fired units with efficiencies of 96 percent and oil-fired units with efficiencies of 86 percent (the practical maximum for the present) by 1990. Canada is considered a world leader in these technologies.

Technological development and demand has been driven primarily by the issues of fuel prices, sources of supply, supply renewability, and conservation. Environmental concerns are now added to this list. There is now a focus on indoor air quality as well as CO₂ and NO_x emissions from the combustion of hydrocarbons.

In response to these issues, product development is taking place in six fields:

- combustion
- heat transfer
- exhaust systems



- control systems
- integration of air and water heating technologies
- retrofit systems for the above.

Canadian manufacturers are making significant advances in all of these fields, including cost reduction. Technology is at an advanced state in the first three, and development is now concentrated on making gains in the last three.

Micro-electronics are making significant contributions to greater energy efficiency. They are now used in controls for heating appliances as well as in controls for managing the indoor environment.

The integration of air and water heating produces systems that can be smaller in size, as combustion will take place over longer periods of time. This reduces the inefficiencies associated with the on-and-off cycles of larger systems.

Advances are also being made in the development of other hybrid heating systems, typically employing a combination of fuels: wood and oil, wood and electricity, or gas and electricity. Add-on electric units are also available for retrofitting existing units.

Continued improvement in energy efficiency in closed buildings normally causes problems associated with getting enough fresh air into the system to remove condensation, to provide air for the combustion process, and to prevent backdrafts. This has given rise to the development of a new product — the air-to-air heat exchanger (heat recovery ventilator). Canadian industry is leading in the development of this product.

An electric heat pump is a space heating and cooling device that operates on a reversible vapour-compression refrigeration cycle. During use, the unit absorbs heat from an external source — air, water or soil — increases its temperature level, and transfers the heat to indoor air. During the cooling season, the refrigeration cycle is reversed and the heat pump operates as an air conditioner. Historically, sales of air-to-air heat pumps have been greatest in the southwestern United States where they are used primarily for cooling. As a result, the manufacture of air-to-air heat pumps in Canada has been limited. Canada does not have a climate particularly well suited for air-source heat pumps but is well suited for ground-source heat pumps. Ground-source heat pumps are now viewed as an efficient means of providing heat in Canadian weather conditions, with an electric or fossil fuel unit as a back-up. The production of ground-source heat pumps is increasing in Canada, and Canadian manufacturers are becoming world leaders in this technology.

Threatened by shortages of traditional energy sources, companies undertook research into the use of solar power for

heating. However, as energy prices moderated in the 1980s, the amount of research decreased. To date, gas, electricity and oil remain the dominant sources of energy for heating, although wood is used in 3.9 percent of Canadian homes.

Production technology within the sector changed slowly, in keeping with the slow development of heating technology prior to the 1974 energy crisis. Product technology change and growing competition among competing fuel sources brought increased investment in modern production equipment. Where applicable, most companies are now using baked-on electrostatic powder paint systems. Canadian manufacturers are now beginning to use computer-aided design and computer-aided manufacturing (CAD/CAM) systems.

Evolving Environment

Demand for high-efficiency heating units has not been as great as might have been expected. Because of the difference in purchase price and the long time needed to recover the extra investment, many home-owners choose mid-efficiency units over high-efficiency models when they replace their existing furnaces. The same price differential causes most housing developers to offer only conventional units with seasonal efficiencies of about 60 percent. Often, when someone buying a new home wishes to upgrade, there is no allowance made for a refund on the conventional unit offered by the developer and the buyer is therefore discouraged from installing the high-efficiency unit.

Both the U.S. and Canadian governments have been prompted to take the regulatory route and will require higher minimum efficiencies for heating appliances. In 1990, minimum efficiency level requirements for water heaters were to come into effect under U.S. law. In 1992, residential warm air furnaces will have to meet specified levels of efficiency. Similar laws are being considered by several jurisdictions in Canada. Most Canadian manufacturers will be able to meet or exceed the proposed efficiency levels using their current technologies.

The heating equipment market is not expected to maintain the growth levels experienced during the 1980s. Housing starts dropped throughout North America in 1990 and will probably not return to the levels achieved in the previous decade in the next 10 years. An increase in the replacement market for equipment could help offset a decline in demand caused by the fall in new construction.

The growth in airtight, super-insulated housing has created a demand for systems that deliver improved air quality and reduce heat loss. Heat recovery ventilation systems, or air-to-air heat exchangers, have been developed in Canada



to serve this purpose. Canadian manufacturers have taken the lead in developing these products and are now expanding their markets into the United States.

At the time of writing, the Canadian and American economies were showing signs of recovering from a recessionary period. During the recession, companies in the industry generally experienced reduced demand for their outputs, in addition to longer-term underlying pressures to adjust. In some cases, the cyclical pressures may have accelerated adjustments and restructuring. With the signs of recovery, though still uneven, the medium-term outlook will correspondingly improve. The overall impact on the industry will depend on the pace of the recovery.

For further information concerning the subject matter contained in this profile, contact

Industrial and Electrical Equipment and Technology Branch
Industry, Science and Technology Canada
Attention: Heating Equipment
235 Queen Street
OTTAWA, Ontario
K1A 0H5
Tel.: (613) 954-3227
Fax: (613) 954-3430

Competitiveness Assessment

The heating equipment industry concentrates on the North American market and has limited competition from offshore producers. Canadian tariffs on heating equipment and the lower value of the Canadian dollar have helped protect Canadian manufacturers from strong U.S. competition. More U.S. manufacturers will enter the Canadian market as tariffs are reduced under the FTA, putting increased competitive pressure on Canadian companies. Canadian manufacturers planning to enter the American market can often face a series of competitive disadvantages, some related to initial adjustments such as codes and standards and some of a more enduring nature. Those Canadian manufacturers with shorter production runs and higher labour content, while capable of reacting quickly to shifts in demand, may be vulnerable to competition from American manufacturers with longer production runs and lower labour content per unit.

To remain competitive, some Canadian manufacturers will have to adopt new competitive strategies. Some may have to concentrate on niche markets while others increase their scale of production through acquisitions, mergers and increased exports. These efforts will likely cause some attrition and consolidation in the sector in Canada, with a smaller but more efficient industry emerging after 10 years.



PRINCIPAL STATISTICS

	1973	1982	1983	1984	1985	1986	1987	1988
Establishments ^a	83	160	171	170	170	174	163	155
Employment ^a	4 453	5 119	5 032	4 220	5 607	5 779	6 252	6 390
Shipments ^b (\$ millions)	92 ^b	293 ^b	292 ^b	377 ^b	582 ^b	631 ^b	756 ^c	804 ^c
GDP ^d (constant 1981 \$ millions)	N/A	127	115	98	153	161	180	186
Investment ^e (\$ millions)	3	9	9	11	11	11	13	11
Profits after tax ^f (\$ millions)	7	14	24	18	14	7	26	N/A

^aFor establishments and employment data, see *Fabricated Metal Products Industries*, Statistics Canada Catalogue No. 41-251, annual (SIC 3071, heating equipment industry).

^bShipments data up to and including 1986 cover the following Industrial Commodity Classification codes: 651, heating equipment, hot water and steam; 652, warm air heating equipment; 653, heating stoves, space heaters and water heaters; 655-84, heat transfer coils; and 652-14, warm air furnaces, electric. Since some of those products are manufactured in SICs other than SIC 3071, please refer to *Fabricated Metal Products Industries*, Statistics Canada Catalogue No. 41-251, annual, and *Machinery Industries*, Statistics Canada Catalogue No. 42-250, annual.

^cISTC estimates.

^dSee *Corporation Financial Statistics*, Statistics Canada Catalogue No. 61-207, annual.

^eSee *Capital and Repair Expenditures, Manufacturing Subindustries, Intentions*, Statistics Canada Catalogue No. 61-214, annual. Quoted numbers include capital investments and repair expenditures.

^fSee *Corporation Financial Statistics*, Statistics Canada Catalogue No. 61-207, annual.

N/A: not available

TRADE STATISTICS

	1973	1982	1983	1984	1985	1986	1987	1988 ^a
Exports ^b (\$ millions)	3	35	50	64	88	106	105	90
Domestic shipments (\$ millions)	89	258	242	313	494	525	651	714
Imports ^c (\$ millions)	21	75	63	65	79	82	92	164
Canadian market (\$ millions)	110	333	305	378	573	607	743	878
Exports (% of shipments)	3	12	17	17	15	17	14	11
Imports (% of Canadian market)	19	23	21	17	14	14	12	19

^aIt is important to note the 1988 data 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 1988 levels 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 1988 levels.

^bSee *Exports by Commodity*, Statistics Canada Catalogue No. 65-004, monthly.

^cSee *Imports by Commodity*, Statistics Canada Catalogue No. 65-007, monthly.



SOURCES OF IMPORTS^a (% of total value)

	1981	1982	1983	1984	1985	1986	1987	1988
United States	84	58	74	83	84	82	81	85
European Community	4	5	6	12	12	14	17	11
Asia	12	34	17	2	2	1	< 2	3
Other	—	3	3	3	2	3	< 1	1

^aSee *Imports by Commodity*, Statistics Canada Catalogue No. 65-007, monthly.

DESTINATIONS OF EXPORTS^a (% of total value)

	1981	1982	1983	1984	1985	1986	1987	1988
United States	84	83	86	91	92	91	93	84
European Community	5	4	5	2	3	1	2	6
Asia	2	2	1	1	1	3	1	6
Other	9	11	8	6	4	5	4	4

^aSee *Exports by Commodity*, Statistics Canada Catalogue No. 65-004, monthly.

REGIONAL DISTRIBUTION (average over the period 1986 to 1988)

	Atlantic	Quebec	Ontario	Prairies	British Columbia
Establishments ^a (% of total)	4	19	50	11	16
Employment ^a (% of total)	X	19	51	X	6
Shipments ^b (% of total)	2	16	67	10	5

^aEstablishments and employment data are from SIC 3071, heating equipment industry.

^bISTC estimates.

X: confidential



MAJOR FIRMS

Name	Country of ownership	Location of major plants
Airtex Industries Ltd.	Canada	Calgary, Alberta
Aston Industries Inc.	Canada	Saint-Leonard-d'Aston, Quebec
Chromalox Inc.	Canada	Rexdale, Ontario
Clare Brothers	Canada	Cambridge, Ontario
DMO Industries	Canada	Tilbury, Ontario
G.S.W. Water Products Company	Canada	Fergus, Ontario
KeepRite Inc.	Canada	Brantford, Ontario
Lennox Industries (Canada) Ltd.	United States	Toronto, Ontario
Trane Canada	United States	Toronto, Ontario

INDUSTRY ASSOCIATIONS

Canadian Institute of Plumbing and Heating
Suite 330, 295 The West Mall
ETOBICOKE, Ontario
M9C 4Z4
Tel.: (416) 695-0447
Fax: (416) 695-0450

Canadian Wood Energy Institute
9665 Bayview Avenue
P.O. Box 32509
RICHMOND HILL, Ontario
L4C 0A2
Tel.: (416) 852-3641
Fax: (416) 852-9068

Heating, Refrigerating and Air Conditioning
Institute of Canada
Suite 308, 5468 Dundas Street West
ETOBICOKE, Ontario
M9B 6E3
Tel.: (416) 239-8191
Fax: (416) 239-1983

Printed on paper containing recycled fibres.

