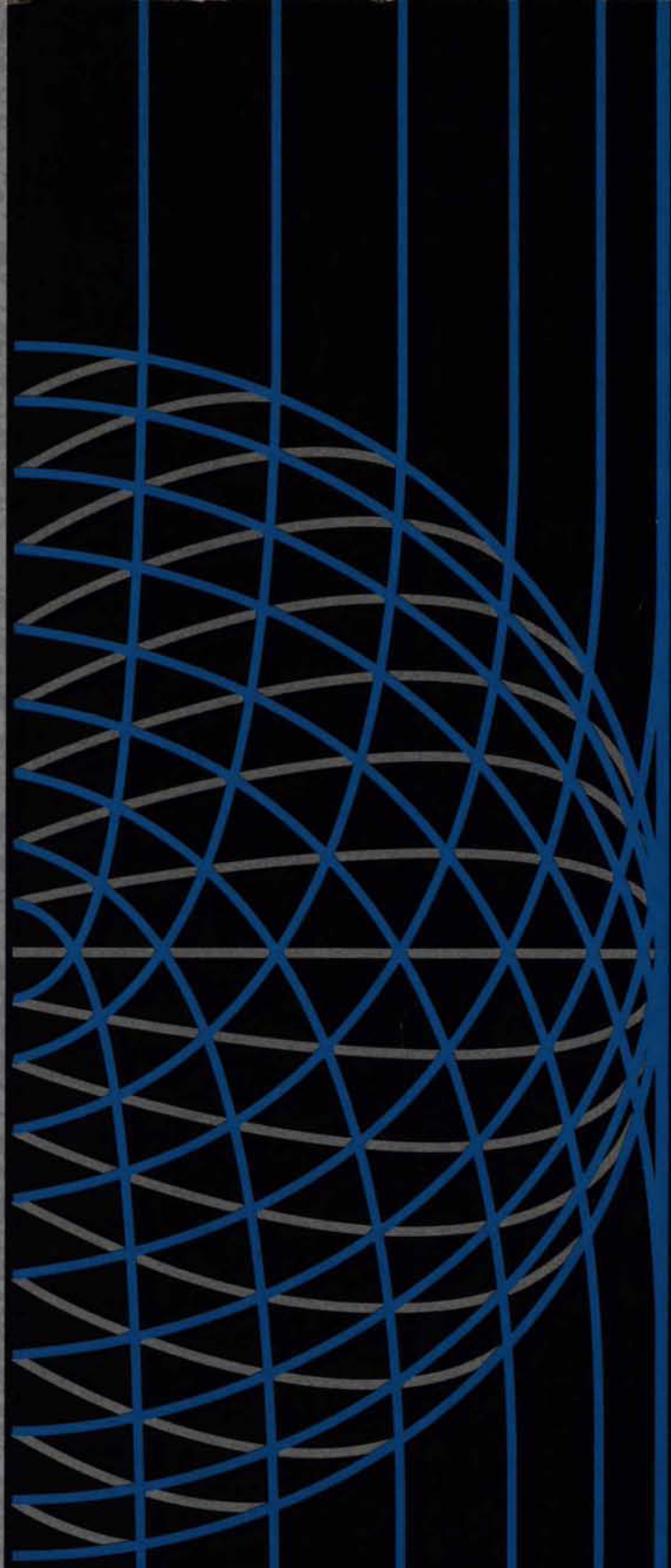
Construction Contracting



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Canada

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

1990–1991

CONSTRUCTION CONTRACTING

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 construction contracting industry is composed of firms and specialized tradespeople engaged in the building, renovation, repair and demolition of immobile structures and in the alteration of natural topography. In addition to *Construction Contracting*, industry profiles in this series have been prepared on

- *Architectural Services*
- *Consulting Engineering*
- *Real Estate Development*

In 1987, the most recent year for which a complete set of Statistics Canada data are available, the construction contracting industry consisted of about 130 000 firms and 673 000 employees. It accounted for about $46 billion, or 56 percent, of total construction activity in 1987, rising to an estimated $55 billion by 1989. The balance of activity was undertaken by utility companies, governments and others not primarily engaged in construction. The construction work undertaken by contractors accounted for over 8 percent of the gross domestic product (GDP) and 5 to 6 percent of total employment in Canada.

Construction contracting is a large and diverse industry. Statistics Canada collects data on 70 separate types of construction activity and a similar number of contracting businesses. In broad terms, the contracting industry consists of general building and engineering contractors, who undertake the construction of entire structures, and trade contractors, who perform specialized services such as site preparation,

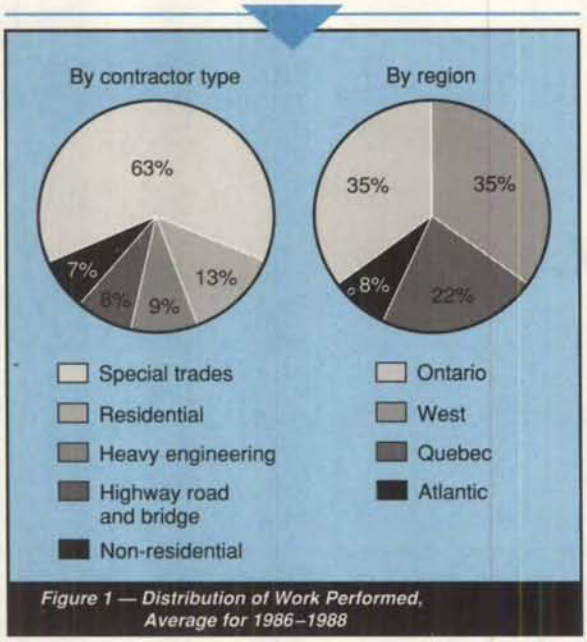

Figure 1 — Distribution of Work Performed, Average for 1986–1988

structural (steel or concrete) work as well as mechanical, electrical or other interior and exterior work. The latter normally operate as subcontractors to general contractors. This relationship provides a division of responsibility and specialization of skills and also helps to reduce financial exposure by spreading the risk on projects.

Special trades contractors make up the largest segment in the industry, accounting for 83 percent of the firms and 63 percent of the output (Figure 1). General contractors involved in the construction of residential and non-residential buildings account for 14 percent of all firms in the industry and 20 percent of the work performed. Engineering contractors, who build structures other than buildings (such as power-generating plants, bridges or oil and gas facilities), account for 3 percent of the firms and 17 percent of the value of the work.

The regional share of construction output by contractors for the 1986–1988 period was 8 percent in Atlantic Canada, 22 percent in Quebec, 35 percent in Ontario and 35 percent in Western Canada. The regional distribution of firms follows similar proportions.

Traditionally, public procurement of construction has accounted for about one-third of the total expenditure on construction. As a group, municipal governments have accounted for the largest share of construction services purchased by government (46 percent), followed by provincial governments (36 percent) and the federal government (18 percent). Most government construction work is contracted out to the private sector.

The contracting industry is composed of a large number of relatively small firms. Only about 5 percent of Canadian firms have gross operating revenues of $1 million or more each; however, these firms undertake 59 percent of the work. On the other hand, 82 percent of the firms have revenues of less than $250 000 each and do about 20 percent of the work. The small firms tend to operate strictly at the local level, while the large firms operate regionally or nationally. The small-firm structure of the industry has been influenced to some degree by public sector procurement practices, as projects have frequently been divided into a number of smaller contracts in order to allow small, local firms to bid.

Contractors enter and leave the market at a relatively high rate, depending on general business conditions. They do not require the same equity base as companies in many other sectors who must finance the purchase of plants and equipment. Contractors traditionally use bank credit and supplier credit to finance their operations, and firms rent much of their equipment or finance it through a chattel mortgage. However, the use of these methods to finance contracting operations results in a highly leveraged structure, leaving little margin for error.

The industry is primarily Canadian-owned and -controlled. Foreign-controlled contractors operating in Canada tend to be subsidiaries of large international firms such as Bechtel, Fluor and Dumez. A number of these companies entered the Canadian market in order to undertake major resource-based projects. Others did so in response to strong capital investment during the 1960s and early 1970s. With the cancellation or postponement of major energy-related projects in the early 1980s, many of these companies have maintained their Canadian operations, but at significantly reduced levels.

Labour content accounts for approximately one-third of construction costs; labour-management relations, therefore, have a major impact on cost performance. Construction unions in Canada play a significant role in trades training, particularly through apprenticeship programs. The contracting industry in Canada has traditionally been heavily unionized, particularly in the non-residential building and engineering sectors. However, with the exception of Quebec, a trend away from unionization has developed in recent years, particularly in the western provinces.

To pursue international activities, contractors normally establish a joint venture with a local company or incorporate a subsidiary and establish an office or network of offices in desirable market locations in the selected foreign country. Construction firms contracting in foreign markets normally provide management services in addition to some of the material and equipment required for the project. Labour is hired locally and material and equipment are obtained from the most competitive source.

The value of new construction put in place worldwide in 1986 was approximately U.S.$1 870 billion. Of this amount, close to U.S.$1 480 billion was undertaken in the 12 largest developed countries (including Canada). International activity tends to be concentrated among the top 250 international firms, such as Bechtel (United States), Bovis (United Kingdom), Brown & Root (United States), Dumez (France), and Philipp Holzmann (Germany). Together, the foreign contracts of these 250 top firms were valued at U.S.$112 billion in 1989.

Canadian contractors are primarily oriented towards the domestic market. However, a small nucleus of Canadian-controlled contracting companies, the largest of which is the PCL Construction Group, have operated in the U.S. market, usually through subsidiaries. In addition, some Canadian-based firms, most controlled by foreign interests, have tended to undertake work in developing countries, usually when Canadian financing has been made available by the Export Development Corporation or the Canadian International Development Agency. While official statistics are not available on Canadian activity abroad, it is estimated that only about $1 billion of work is performed annually under foreign contracts held by Canadian firms.

Performance

The development of the contracting industry across Canada can be traced to major infrastructure developments in the country's history and to periods of economic expansion that spurred investment in new capital structures. Prominent developments include the St. Lawrence Seaway, the Trans-Canada Highway and Churchill Falls projects during the 1950s and 1960s. In the late 1970s contractor capability in all sectors of Western Canada developed rapidly as a result of major oil and gas investments in Alberta and the Revelstoke hydro-electric project in British Columbia. Similarly, in the 1970s, the massive James Bay hydro-electric development led to a substantial increase in construction capability in Quebec, particularly in the heavy engineering sector.

The 1981–1982 recession led to a sharp reduction in the number of contractors active in all segments of the industry. Economic recovery took hold and strengthened over the latter part of the decade, with construction activity being led by very high levels of residential construction as well as by a strong performance from the commercial building and industrial contracting sectors. A significant feature of this period was the high level of activity in repairs, renovations and retrofits undertaken in building construction, which has led to a new breed of small contractors who specialize in this work.

During the 1980s, the engineering construction segment had been expected to increase its capacity to meet the demands of the megaprojects that were being planned. However, with the passing of the oil price shocks, most of these projects were no longer viable and, accordingly, capabilities gradually declined. In fact, some of Canada's largest heavy civil contractors were forced to significantly reduce the scope of their activity or to cease operation altogether. In addition to a lack of major projects domestically, this sector has been faced with intense competition from too many foreign and Canadian contractors as they try to adjust to much lower levels of activity worldwide. In the late 1980s, however, the megaproject market began to revive, with initial construction contracts being awarded for the Hibernia offshore oil development in Newfoundland and the Lloydminster Heavy Oil Upgrader Project in Alberta now under construction.

As the industry has developed, a trend towards some specialization has also occurred. In particular, Canadian contractors have acquired expertise in the construction of large-diameter pipelines, tunnelling, power dams, highrise buildings and cold-climate construction techniques. This move has also led to the increased use of special trades contractors by the larger general contractors, which reduces the need to directly employ skilled tradespeople.

Profits at the industry level are low compared with those in other industries, a reflection of severe competition resulting from the bidding process. In 1987, the aftertax profit on total income was about 3 percent, compared with 11 percent for mining, 9 percent for pulp and paper, and 5 percent for transportation and agriculture. During the 1981–1982 recession, profits dropped sharply but, with the exception of heavy engineering contractors, have recovered.

Strengths and Weaknesses

Structural Factors

Factors influencing the competitive performance of Canadian construction contractors in the domestic market include the need for higher productivity levels, the presence of highly volatile markets, and the lack of total project capability (engineer-procure-construct or EPC) for large engineering projects. The latter factor is also an impediment to penetrating export markets.

Achieving higher productivity levels on the construction site leads directly to competitive success for both contractors and their clients. Since a relatively small productivity increase can reduce the costs on major projects by millions of dollars, contractors are constantly striving for improvement. The industry in Canada is thought to lag behind counterparts in some other countries, particularly in the application of computer-based technologies to both office operations and job-site construction processes. Increased productivity can be obtained by greater use of computer-aided design (CAD), more off-site prefabrication and just-in-time scheduling, all of which can speed up the construction process.

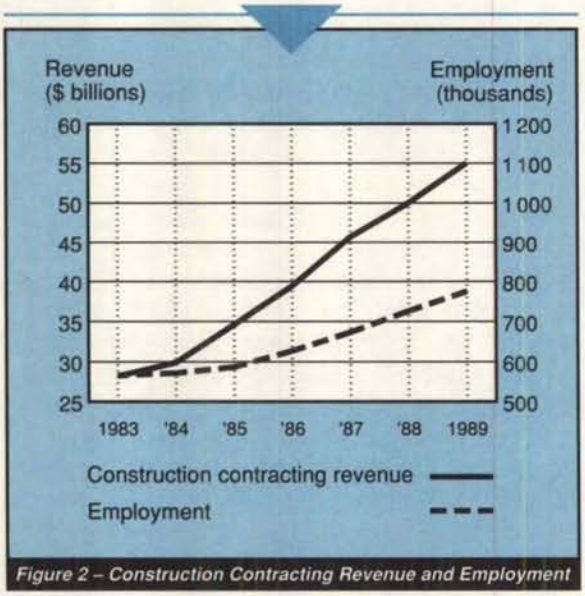

Figure 2 – Construction Contracting Revenue and Employment

Although conditions vary with economic cycles, Canadian contractors normally have access to competitively priced inputs. Specialized and technically competent managerial skills are available at the general contractor level, as are the trade skills required for on-site preparation, carpentry, plumbing or electrical work. Industrial relations in the industry have generally been managed well, although the large number of small firms, many independent craft unions and numerous employee bargaining units often complicate the industrial relations process.

While Canadian construction contractors continue to enjoy modest productivity growth (Figure 2), further improvements by heavy engineering and industrial contractors, in particular, are increasingly constrained by the nature of the bidding process in North America. This process tends to set up adversarial relationships between the various stakeholders in a project, often leading to cost overruns, protracted litigation and reduced margins for all participants. This contrasts with the practices of Asian and European contractors who make greater use of "partnering" to achieve a more equitable sharing of risks and rewards and ultimately a more stable industry.

Construction activity is particularly vulnerable to business cycle fluctuations. Pressures to keep cost estimates low during periods of reduced economic activity, as well as to pay premiums for labour and material in short supply during boom times, both negatively affect profit margins. Canadian contractors also face sharp seasonal swings due to Canadian climatic conditions, although cold-weather operating capability has improved in recent years through the introduction of more efficient year-round building techniques. A number of Canadian contractors now specialize in services required for projects in cold-climate environments.

The industry is well developed in all regions, partly as a result of preferential provincial purchasing and hiring practices that encourage the development of local firms. Canada, however, unlike many other industrialized countries, has not developed large, integrated, national construction companies capable of undertaking major turnkey projects, in part because much of Canada's industrial base is U.S.-owned or -controlled. When U.S. parent companies sought to establish or expand their Canadian operations, they tended to engage U.S. construction companies with whom they had worked in the past, particularly for major resource-based projects. The regional development policies of provincial and municipal governments may also have inhibited the growth of Canadian firms on a national basis.

Although not unique to Canada, many of the largest heavy engineering contractors encountered severe financial difficulties during the 1980s and were forced to reduce substantially their scope of operations. This loss of capability has resulted in the recent awarding of several large jobs to financially strong foreign companies. Companies in other sectors, however, have not experienced this problem to the same extent.

The participation of Canadian contractors in international markets has been constrained by a number of additional factors. Apart from a small nucleus of firms, most Canadian contractors have not acquired the scale or financial strength to carry the much larger risks associated with major foreign projects. These risks include those associated with foreign exchange and regulatory controls, as well as the cost and complexity of mobilizing project resources in unfamiliar and distant environments. Of major importance is the need for international contractors to accept total project responsibility, in some cases including the build-own-operate-transfer (BOOT) process, for a facility. The BOOT feature requires the successful bidder to finance, build, own and operate the facility for a number of years until the cost is recovered and the facility is transferred to the client. This type of project places relatively small, non-integrated Canadian firms at a particular disadvantage.

Canadian contractors for the most part have not developed in-house capability or forged close links with Canadian engineering and architectural design consultants. In Europe, and to a certain extent in the United States, construction companies and engineering firms in particular have merged with or acquired firms in the other discipline, creating a strong in-house capability in both engineering and construction. The fact that these two segments have evolved independently of each other in Canada is viewed as a

weakness for the Canadian industry and is thought to have limited its success in the world market.

Finally, international contractors frequently need to compete on the basis of the financial package they can provide to the project. This puts a strain on the limited resources of Canadian firms and government agencies to provide the "financial engineering" necessary to obtain projects.

Trade-Related Factors

Contractors seeking to market internationally either establish a joint venture with a local company or incorporate a subsidiary in the foreign country. Accordingly, trade factors tend to involve foreign investment barriers more than trade-in-services barriers. No tariffs apply to the provision of contracting services.

The principal non-tariff barrier affecting the industry in developed-country markets is government procurement. Foreign firms that incorporate in another country are often accorded the same treatment as domestic firms. This is the case in both Canada and the United States. In the United States, government procurement of construction is a potentially lucrative market for Canadian contractors. However, "Buy America" and local preference policies at the state and municipal levels generally restrict government purchases of construction to local contractors. Similar policies also apply in Canada for local public works. Local preference policies do not discriminate specifically against foreign contractors, since they apply to all companies from out-of-state or out-of-province.

Other factors affecting cross-border activity include immigration regulations that apply to professional and managerial personnel and skilled tradespeople. As well, building codes and materials specifications may differ by country and often by individual province and state.

The Canada-U.S. Free Trade Agreement (FTA) contains provisions relating to the construction industry. These include the relaxation of immigration procedures governing the temporary entry of business personnel, as well as agreement to extend the principles of national treatment, right of commercial presence and right of establishment. The agreement also recognizes the intent to work towards harmonization of accreditation standards governing professionals working in the industry.

Technological Factors

Technological change in construction tends to be a gradual process. It includes a wide variety of individual developments in materials and equipment, together with innovative design and construction techniques. Much of the new technology, especially as it relates to materials and equipment, originates outside Canada and, in fact, outside the construction industry.

The industry uses constantly changing state-of-the-art technology for its machinery, equipment and materials. Other new technologies, such as computer-operated equipment and sophisticated concrete slip-forming techniques, are readily available to the Canadian industry. However, there is concern that improvements in the means of diffusing new technology are required to broaden use throughout the industry and there is a requirement to facilitate the acquisition of foreign technology. The government is currently working to speed up the diffusion of all technology, particularly technology developed in government laboratories. In addition, there is considerable scope for wider use of computer technology for carrying out such functions as estimating, scheduling and procurement or for improving management and project control.

Other Factors

The federal government influences the overall domestic and international performance of the construction industry through a wide range of policies regarding interest rates, taxation, procurement, immigration, housing and the environment as well as through programs such as human resources planning and training.

Provincial governments have jurisdiction over labour in such areas as apprenticeship training, labour standards and workers' compensation for construction tradespeople. There are also provincial building codes and standards that regulate the construction process. In addition, most provinces have departments or agencies responsible for housing that work closely with the Canada Mortgage and Housing Corporation on programs, particularly with regard to subsidized housing.

Environmental factors will increasingly affect both the level of construction activity and the performance of contractors. At the same time, the inclusion of environmental safeguards increases the value of new capital outlays on projects that proceed and provides a market for the retrofit of existing facilities. Protracted and sometimes overlapping environmental assessments are adding to cost pressures and are leading to delays in project starts. In addition, construction waste is a major contributor to landfill sites, and the imperative to invest in better waste management and recycling programs will add to costs in the short term.

Evolving Environment

While construction markets in Canada have expanded rapidly since the 1981–1982 recession, average annual growth rates have dropped sharply since 1989. After several years of unusual strength, housing starts plunged dramatically in 1990 primarily because interest rates remained high for an extended period and because pent-up demand by this

time had been satisfied. Similar, but less severe, reductions began to occur in most areas of commercial development, which were partially offset by increases in industrial and publicly financed projects.

The outlook for the Canadian construction industry is uncertain, but modest real growth of about 2.5 to 3 percent is currently forecast through the 1990s as the economy recovers and interest rates decline. Residential construction is expected to take a declining share of this market in favour of increases for the commercial building and engineering construction segments. Engineering construction in particular should benefit from energy-related investments, most notably Hibernia, increased spending on infrastructure and additional investment on environmental retrofits.

Although Canadian contractors have not been major participants, markets in the developing countries were important outlets for European, Asian and American contractors throughout the rapid expansion of the late 1970s. In particular, contractors used these markets as a means of maintaining an adequate level of business activity, profits and key personnel during periods of weak domestic demand. However, throughout most of the 1980s, the combination of declining oil revenues, earlier overexpansion of infrastructure and industrial development as well as debt problems in some countries resulted in significantly reduced construction activity in most oil-producing nations. No major improvement is currently forecast.

As the 1990s begin, construction markets in industrialized countries appear headed for an upturn. In Pacific Rim countries, construction activity is vigorous and shows signs of further growth. Strong European economies, further stimulated by the prospect of the formation of a single market after 1992, are experiencing increased construction activity. Recent developments in Eastern Europe should also produce attractive new markets, once the necessary investment or financing is in place to restructure industrial plants, develop infrastructure and reduce pollution. The provision of project financing to Canadian firms could be a key factor allowing them to penetrate this market.

Construction activity in the United States is expected to follow the more modest growth trend predicted for the Canadian market. This market should provide selected opportunities, particularly in the border areas or where Canadian developers are active. To date, there has been little evidence that the FTA has had any significant impact on cross-border construction activity in either direction. This is likely because government spending cutbacks and tight financing markets have limited construction activity in both countries since the agreement has been in place.

While new opportunities for Canadian contractors in foreign markets will be available, competition will be stiff. Significantly increased participation by Canadian firms will largely depend on their ability to restructure and develop the necessary technical and financial linkages with foreign partners.

In structural terms, the contracting industry in Canada should continue to evolve to better meet the needs of clients for more efficient and cost-effective capital facilities and supporting infrastructure, although no dramatic change is expected. Specialization trends will lead general contractors to orient their development more towards particular types of construction activity. In addition, contractors increasingly will take on the role of construction managers and developers. The trend of Canadian contractors to undertake industrial and resource projects jointly in Canada with foreign EPC firms should continue and should assist Canadian firms to develop their own EPC capabilities in certain product areas. The structure of trade contractors is not likely to change significantly, but further specialization of subtrades can be expected, as new materials will require more specialized installation techniques.

Competitiveness Assessment

The large number of contracting companies, their equitable regional distribution and extensive specialization, particularly among the trades, have ensured an efficient, competitive industry that is well positioned to meet most of the demands of the domestic market. Residential and non-residential contractors in particular have acquired a solid reputation for reliability and innovative design. Some segments of the heavy engineering sector are currently experiencing significant restructuring and consolidation as they adjust to lower levels of investment in major resource projects and infrastructure. To maintain its competitiveness, the industry is continuing to improve management techniques, productivity and the adoption of computer-related technology. Further specialization can be expected. Apart from a few firms, Canadian contractors generally lack the capability required to be successful on major capital projects in international markets. It is likely, however, that an increasing number of firms will move to acquire this capability through joint ventures, consortia, etc., and that new opportunities in Eastern Europe may offer scope for participation.

For further information concerning the subject matter contained in this profile or in the ISTC sectoral studies (see page 10), contact

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Tel.: (613) 954-2947
Fax: (613) 954-1894

PRINCIPAL STATISTICS

	1976	1983	1984	1985	1986	1987	1988	1989
Establishments[a]	59 091	110 845	117 618	129 827	137 566	129 965	N/A	N/A
Employment[b]	635 000	566 000	572 000	587 000	627 000	673 000	726 000	775 000[c]
Total value of construction[d] ($ millions)	33 132	55 948	56 574	67 983	71 701	81 971	90 871	100 065
Performed by contractors[a] ($ millions)	15 437	28 222	29 909	34 610	39 430	45 674	50 000[c]	55 000[c]
Performed by others[e] ($ millions)	17 695	27 726	26 665	33 373	32 271	36 297	40 871[c]	45 065[c]
GDP, total construction[a] (% of gross national expenditure)	16.6	14.4	13.3	14.8	14.7	15.3	15.5	15.8
GDP, construction contractors[f] (% of total GDP)	7.7	7.3	7.0	7.5	8.1	8.4	8.5	8.7
Foreign billings[c] ($ millions)	800	800	900	900	900	900	900	1 000

[a] See various Statistics Canada publications on the construction industry, Statistics Canada Catalogue Nos. 64-204 through 64-210.

[b] See *Labour Force Annual Averages, 1981–1988*, Statistics Canada Catalogue No. 71-529.

[c] ISTC estimates.

[d] See *Construction in Canada*, Statistics Canada Catalogue No. 64-201, annual, and *Standard Industrial Classification, 1980*, Statistics Canada Catalogue No. 12-501 (division F, construction industries).

[e] Calculated. Includes construction by government, utilities and other sectors using their own labour force.

[f] Calculated.

N/A: not available

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

	Atlantic	Quebec	Ontario	West
Establishments (% of total)	7	19	36	38
Employment (% of total)	8	23	40	29
Work performed (% of total)	8	22	35	35

[a] See *Construction in Canada*, Statistics Canada Catalogue No. 64-201, annual.

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Name	Country of ownership	Location of head office
Banister Inc.	Canada	Scarborough, Ontario
CANA Construction Co. Ltd.	Canada	Calgary, Alberta
CANRON Inc.	Canada	Toronto, Ontario
Commonwealth Construction Company	United States	Burnaby, British Columbia
Eastern Construction Company Limited	Canada	North York, Ontario
Ellis-Don Construction Limited	Canada	London, Ontario
Magil Construction Ltée	Canada	Montreal, Quebec
PCL Construction Group Inc.	Canada	Edmonton, Alberta
Hervé Pomerleau Inc.	Canada	Saint-Georges, Quebec
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Canadian Home Builders' Association
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OTTAWA, Ontario
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Fax: (613) 232-8214

Mechanical Contractors Association of Canada
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Tel.: (613) 232-0492
Fax: (613) 235-2793

SECTORAL STUDIES AND INITIATIVES

The following publications are available from ISTC (see address on page 7).

Construction Outlook and Issues Study
This study, sponsored by ISTC and conducted by Revay and Associates Ltd., reviews the activity and performance of seven non-residential sectors of the construction industry during the past 10 years, and provides an outlook for the 1990s.

Heavy Engineering Contracting in Canada
This report briefly examines the size and structure of the heavy engineering construction sector in Canada and its performance from 1977 to 1987.

Reinvesting in Infrastructure: A Review with Annotated Bibliography
This report reviews various aspects of the problem of Canada's aging public sector infrastructure, with particular emphasis on linkages between investment in infrastructure and productivity, competitiveness and economic development.

Printed on paper containing recycled fibres.