SECTOR COMPETITIVENESS FRAMEWORKS

ARCHITECTURE

PART 1 – OVERVIEW AND PROSPECTS

Industry Sector
Service Industries and Capital Projects

Secteur de l'industrie
Secteur des services et grands projets

Canada

ARCHITECTURE

PART 1 – OVERVIEW AND PROSPECTS

PREPARED BY:
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This *Overview and Prospects* is the first of two companion documents on the Canadian architecture industry in the **Sector Competitiveness Frameworks** series, which is being produced by Industry Canada in collaboration with Canada's key stakeholders in the industry. *Part 2 — Framework for Action* will be prepared in coming months, based on discussions with major industry stakeholders, following study and review of the *Overview and Prospects.*

The **Sector Competitiveness Frameworks** series focusses on opportunities, both domestic and international, as well as on challenges facing each sector. The objective is to seek ways in which government and private industry together can strengthen Canada's competitiveness and, in doing so, generate jobs and growth.

Part 1 — Overview and Prospects is being made available for distribution in printed as well as electronic forms. In all, some 30 industrial sectors are being analyzed.

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FOREWORD

The new Canadian marketplace is expanding from national to global horizons and its economic base is shifting increasingly from resources to knowledge. These trends are causing Canadian industries to readjust their business approaches, and government must respond with new tools to help them adapt and innovate. Industry Canada is moving forward with strategic information products and services in support of this industry reorientation. The goal is to aid the private sector in what it is best qualified to do — create jobs and growth.

Sector Competitiveness Frameworks are a series of studies published by Industry Canada to provide more focussed, timely and relevant expertise about businesses and industries. They identify sectors or subsectors having potential for increased exports and other opportunities leading to jobs and growth. They cover 30 of Canada's key manufacturing and service sectors.

While they deal with "nuts and bolts" issues affecting individual sectors, the Sector Competitiveness Frameworks also provide comprehensive analyses of policy issues cutting across all sectors. These issues include investment and financing, trade and export strategies, technological innovation and adaption, human resources, the environment and sustainable development. A thorough understanding of how to capitalize on these issues is essential for a dynamic, job-creating economy.

Both government and the private sector must develop and perfect the ability to address competitive challenges and respond to opportunities. The Sector Competitiveness Frameworks illustrate how government and industry can commit to mutually beneficial goals and actions.

The Sector Competitiveness Frameworks are being published sequentially in two parts. An initial *Overview and Prospects* document profiles each sector in turn, examining trends and prospects. The follow-up *Framework for Action* draws upon consultations and input arising from industry–government collaboration, and identifies immediate to medium-term steps that both can take to improve sectoral competitiveness.

CONTENTS

1 HIGHLIGHTS

Architects are primarily involved in the design of buildings and sites for public rather than industrial uses. Their services range from the design of furniture to buildings, and may include urban design, project management and town planning. The employment of architects is required by law for the design and construction of multi-unit residential buildings and buildings housing public gatherings for commercial, institutional or cultural purposes.

Architecture is organized professionally at both the provincial and national levels. Provincial architectural associations control the licensing of individuals and practices, and the national association provides a framework for the development and recognition of architectural excellence. Membership in the provincial associations is mandatory for persons providing architectural services to the public. Membership in the national association is voluntary.

Whereas architecture is a profession as well as an industry, the focus of this *Overview and Prospects* is on the approximately 3 500 firms or practices that constitute the Canadian architectural industry. These are mainly small firms, typically employing two to three people. Architecture is a knowledge-based profession and its practitioners are its main assets. The development of human capital is one of the most important issues an architectural practice must address.

1.1 Distinguishing Features

The architectural industry largely focusses on domestic markets, although numerous firms are active abroad; most firms concentrate on specific regional markets. In terms of architectural market segments based on revenues generated, the institutional market (government buildings, schools and other public buildings) is most important nationally, followed by the commercial market (hotels, restaurants, office buildings, retail stores). The third most important market segment is the residential market (mostly multi-unit buildings). There are significant regional differences, however, and architects in British Columbia currently generate a significantly higher proportion of revenues from the residential market than do architects in other provinces. Total revenues for the industry measured in current dollars for 1995 were $898.9 million. Of this amount, only $16.8 million was derived from exports of architectural services.

1.2 Major Trends

Although architects in most provinces benefited from significant improvement in revenues in 1995, the general trend over the 1990s has been toward declining fee revenues. The weakness in the architectural market has mirrored the general weakness in construction activity. During 1991–94, constant-dollar architectural revenues declined at an annual rate of 4 percent. British Columbia was the exception, with a growth in real fee revenues of 9.7 percent per year over the 1991–94 period. In Ontario, Quebec, the Prairies and the Atlantic region, real revenues declined substantially over the same period.

The profitability of architectural offices also decreased. Profit margins fell during the mid-1990s to an average of 8.4 percent from 20.6 percent in 1988. Profitability varies across the country, with firms in Quebec, Manitoba, Saskatchewan and British Columbia having above-average profit margins. Large firms have slightly higher profit margins than small practices.

Data from 1995 suggest the architectural industry may finally be recovering from the downturn resulting largely from the prolonged impact of the 1990–91 recession on construction. Real fee income increased by 7.4 percent in 1995, while profit margins rose to 12.5 percent.

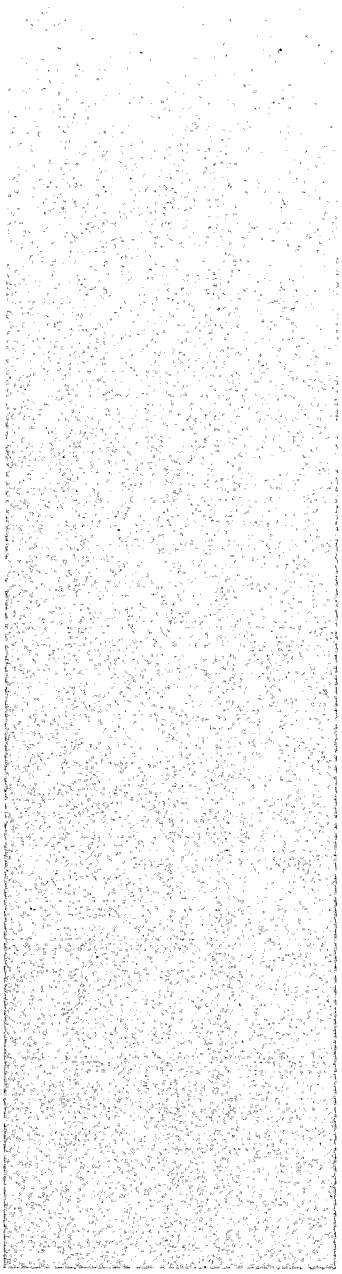
In the western provinces and Ontario, architects are looking forward to the increased demands likely to be generated by population growth from immigration and several major new developments planned in coming years. Over the next few years, architects in all parts of the country should benefit from improved economic conditions, pent-up demand and the elimination of unused commercial space. Because of the expected rebound in market demand, the short-term outlook is favourable.

Over the long term, the outlook is for moderate growth in the demand for architectural services. In the future, architectural work is likely to shift toward an increase in the number and combination of mixed-use buildings (e.g. office or institutional/residential buildings) and the adaptive reuse of existing facilities to serve new requirements. Architects will also have to respond to the demand that facilities meet increasingly stringent environmental and sustainable development criteria.

Most architectural firms are independent from other segments of the engineering and construction industry. This can limit their scope of activities, and constrain their ability to participate in new forms of project delivery that involve the provision of an integrated package of design, engineering, financing and project management services. While many Canadian firms have adopted new computerization and telecommunications technologies, weak demand and downward pressure on fees have made it more difficult for architectural firms to undertake investments, including important investment in human capital development. Architectural firms by nature are innovative, but they do not have the incentive to invest significantly in research. Returns on research are limited because architectural innovations that are not specific to the needs of individual clients tend to diffuse quickly through the building sector.

In an atmosphere of slower growth, the majority of opportunities for architects are found in renovation and adaptive reuse projects. As building densities are increased in urban areas, projects become more complex, and there will be a need for greater architectural input. Increasingly, architects will be required to shift their focus from expanding the quantity to helping improve the quality of the nation's building stock.

Through strategic alliances, architectural firms could better position themselves to pursue market opportunities outside the country. At the same time, professional associations can become more proactive in promoting the role of architects within Canada. As well, efforts should be devoted to removing the remaining regulatory impediments to interprovincial trade in architectural services and to eliminating regulatory restrictions impeding the participation of Canadian architects in the increasingly important design–build market.



2 KEY POINTS ABOUT THIS INDUSTRY

Architects apply their skills to wide range of services . . .

Architects play the dominant role in the design of buildings that serve human rather than industrial uses (engineers generally play the dominant role in the design of industrial projects). The services of an architect are required by law where buildings of a certain size are constructed to house public gatherings for commercial, institutional or cultural purposes. They also provide residential design services, with a concentration on multi-unit buildings and large, custom-built, single-family houses. In addition to coordinating knowledge from different disciplines toward planning and constructing buildings, architects can use their design skills to help give physical expression to social, institutional or corporate visions.

. . . including feasibility studies, design, construction documentation . . .

The practice of architecture consists of providing consulting services in connection with the design, construction, conservation or alteration of a building or group of buildings and the space within and surrounding such buildings. A typical package of services includes: consulting with clients to determine the type, style and purpose of the proposed structure; preparing schematic drawings and models; preparing construction documents including drawings and technical specifications, along with other information required for a construction bid package; calling for contractor bids on behalf of the client; and administering the resulting construction contract.

. . . and facilities management

Other services related to the building process include urban and environmental planning, landscape architecture, interior design, construction management and real estate development. Although some architectural firms have established separate companies to offer construction or facilities management services, generally architects will work with firms specializing in these other complementary areas of expertise. Architects also participate in earlier and later stages of the building process. Pre-design services can include market research, feasibility studies and space planning. Post-construction services may include building monitoring for energy consumption or air quality, retrofit design and implementation, space planning for existing facilities, and environmental or facilities management.

2.1 Global Context

There is no information available on the world market for architectural services, but we can get a rough sense of the size of architectural expenditures in major industrialized economies from information indicating that gross fixed capital formation among member countries of the Organisation for Economic Co-operation and Development (OECD) in 1990 was US$2 618.5 billion. If the relationships between gross fixed capital formation and building construction as well as between building construction and architectural expenditures are

the same in the OECD member countries as in the U.S. (which accounts for about half of all OECD capital spending), then OECD architectural expenditures in 1990 were in the range of US$25 billion.

While it is useful to have some notion of total expenditures by major industrial economies, architecture is not a global industry in the same sense as most goods and some service industries. International trade in architectural services is limited by licensing and other legal requirements, along with geographic differences in architectural demands arising from different climatic conditions, different building codes and differences in culture, customs and work patterns. Large firms often serve foreign markets by establishing "branch plant" offices, which tend to operate with a high degree of autonomy. International competition primarily occurs in the market for very large projects, where there is often a need for specialized expertise and an integrated package of architectural and engineering services.

2.2 North American Context

The U.S. is a major market for architectural services. Receipts of architectural firms in the United States in 1994 totalled US$14.6 billion. According to recent U.S. Department of Labor estimates, some 140 000 U.S. workers are employed in the provision of architectural services.

U.S. architectural receipts reached US$14.6B in 1994

Architecture was the first profession targeted under the Canada-U.S. Free Trade Agreement for the elimination of barriers to free trade in services between the two countries. After extensive negotiations, a Canada-U.S. Interrecognition Agreement was signed by the Committee of Canadian Architectural Councils (CCAC) and the U.S. National Council of Architectural Registration Boards (NCARB). The CCAC has representatives from the 10 provincial associations and coordinates regulatory issues among provincial jurisdictions. Thirty-six states and all 10 Canadian provinces have agreed on a framework to grant reciprocal privileges to license architects. Delays in establishing the right of Canadian architects to licensure in American states, which were due to the necessity of confirming appropriate equivalencies in professional regulation, were largely resolved by July 1996.

Barriers to international trade in architectural services have been largely removed

A licence is a necessary but not a sufficient condition to practise in a state or province. Each jurisdiction establishes its own requirements regarding matters such as accessibility to the public and proof of professional liability insurance. In Ontario, for example, licensed architects must also obtain a "Certificate of Practice," which identifies them as being duly authorized to provide services to the public. Local practice conditions must always be satisfied before an office may open.

Negotiations are under way with Mexico to exchange reciprocal licensing rights

Negotiations are currently under way with Mexico to exchange reciprocal licensing rights. However, the role of the architect is very different in societies evolved from Spanish or Portuguese settlement from those arising in Anglo-American societies. While the consultant in Canada and the United States assumes the role of a third party, intermediate between the building owner and the building contractor, the architect in Mexico often serves as construction manager and sometimes acts as site superintendent, with direct responsibility for daily work of construction crews. As a result of these and other cultural differences, it is uncommon for Canadian or U.S. firms to have offices in Mexico, or vice versa. Such exchange as does occur tends to involve contractual arrangements for the provision of specific types of architectural expertise.

2.3 Canadian Industry Snapshot

Canada's early buildings reflected the contribution of architects who had immigrated from the United States, the United Kingdom and elsewhere. Canadian architects initially received their training by apprenticing with practitioners, many of whom were educated abroad. The first full-time department of architecture was established in 1896 at McGill University. The formal infrastructure of the profession came into being with the founding of the Ontario Association of Architects in 1889 and the Province of Quebec Association of Architects in 1890. The recognition that a national organization was needed to promote the common interests of provincial groups led to the formation in 1907 of the Architectural Institute of Canada, which was later to become the Royal Architectural Institute of Canada (RAIC).

Size and Scope

1995 industry revenues in Canada were nearly $900M

The architectural services industry comprises approximately 3 500 private firms and employs 11 500 workers, plus approximately 7 000 registered architects. Statistics Canada estimates total industry revenues in 1995 at $898.9 million. Although Statistics Canada data appear to exclude some sole proprietorships and other small or part-time practices, they capture the activities of the main producers of architectural services.

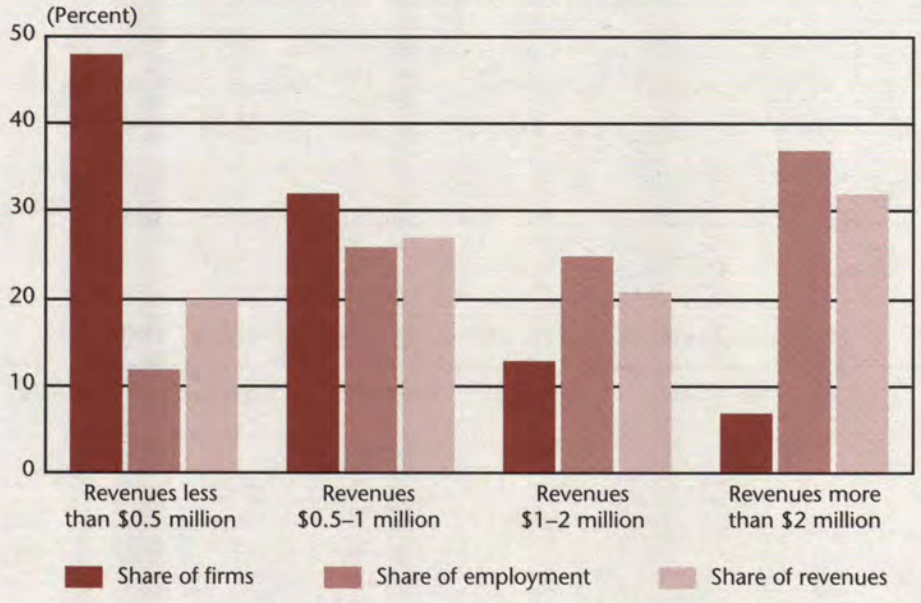
While the focus of this *Overview and Prospects* is on the Canadian architectural industry, architecture is also a profession. In 1998, according to the RAIC, there were about 7 650 provincial licences issued in Canada, but this represents a lower number of architects, as a small number of architects hold licences in more than one province. In addition, a significant number of graduates of architectural schools are unregistered and hence unable to adopt the title "architect." The 1990 Census recorded almost 12 000 individuals as members of the architectural profession. Those professionals who work within corporations or the public sector (as distinct from working for firms that provide architectural services) are not always licensed architects.

The architectural industry is almost wholly Canadian owned. Most architectural firms are small; according to a recent survey by the Ontario Association of Architects, three quarters of the provincial firms have fewer than 5 full-time employees (excluding principals), and only 6 percent have more than 10 employees. Firms in British Columbia tend to be larger than average.

Small, Canadian-owned firms make up most of industry

The modest size of most members of the industry can be seen in Figure 1. Almost half of all architectural firms generated less than $500 000 in revenues in 1994. Only 7 percent of the firms in the industry sold more than $2 million in architectural services in 1994. These "large firms," however, accounted for a substantial share of total industry employment (37 percent) and revenues (32 percent).

Figure 1. Distribution of Architectural Firms, Employment and Revenues, by Firm Size, 1994



Source: Statistics Canada, *Architectural, Engineering and Scientific Services in Canada*, Catalogue No. 63-234-XPB.

Other professionals compete with architects . . .

For a variety of reasons (including the nature of professional liability insurance, as discussed below), the range of services offered commercially by architects has declined over the last few decades. In addition to design and construction, architectural services used to include urban planning, landscape design, interior design and even furniture design. Although architects are not prevented from offering services in these areas, most of these related functions now are performed by specialists who have managed to differentiate their products from architectural services and market them effectively. These professionals and para-professionals are represented

by associations such as the Interior Designers of Canada, the Canadian Society of Landscape Architects, the Canadian Institute of Planners, the Association of Canadian Industrial Designers and the Society of Graphic Designers of Canada.

. . . while other firms diversify into non-traditional areas

The scope of the services provided by architects has also been affected by the increasing popularity of "design–build" project delivery. In design–build contracts, architects work with contractors to provide a full range of services, including design, construction, project management, financing, and sometimes even operational management. In response to the growth in the international design–build market, some major firms are diversifying into non-traditional areas of practice, thus blurring the distinctions between design and construction. The implications of design–build are further discussed in Section 3.3.

Market Segments

Market profiles vary slightly by region . . .

The nature of projects undertaken by architects varies by region and firm size. The major market segments can be divided into institutional, commercial, residential, industrial and leisure facilities. As can be seen in Table 1, the institutional architectural market accounts for the largest share of revenues — almost 45 percent nationally. The main components of this market are health care and educational facilities. Institutional business is relatively more important for large firms.

Table 1. Income Distribution, by Type of Work, 1995

	Institutional	Commercial	Residential	Leisure	Industrial
			(% of fee revenues)		
Atlantic	55.8	28.3	1.7	8.2	5.8
Quebec	45.2	21.3	4.3	9.7	11.3
Ontario	45.6	23.7	12.5	8.0	5.3
Prairies	55.2	28.0	5.5	10.2	0.9
British Columbia	34.4	25.9	26.9	6.4	4.5
CANADA	44.5	24.9	13.9	8.1	5.1

Source: Statistics Canada, *Architectural, Engineering and Scientific Services in Canada*, Catalogue No. 63-234-XPB.

. . . with institutional, commercial segments dominant in all

The second most important market is the commercial market (hotels, restaurants, office buildings, retail stores). In British Columbia, however, unlike in other provinces, the residential market is a more significant source of revenues than the commercial market. Across the country, commercial architectural services have declined in relative importance over the 1990s.

Third in terms of relative importance is the residential market. Typically because of firm profitability, architectural firms will only become involved in residential projects involving an investment of more than $300 000. Consequently, firms tend to concentrate on multiple-unit projects or high-end, single-family houses. Much of the residential design and renovation work is handled by architectural technologists or the developer's in-house staff.

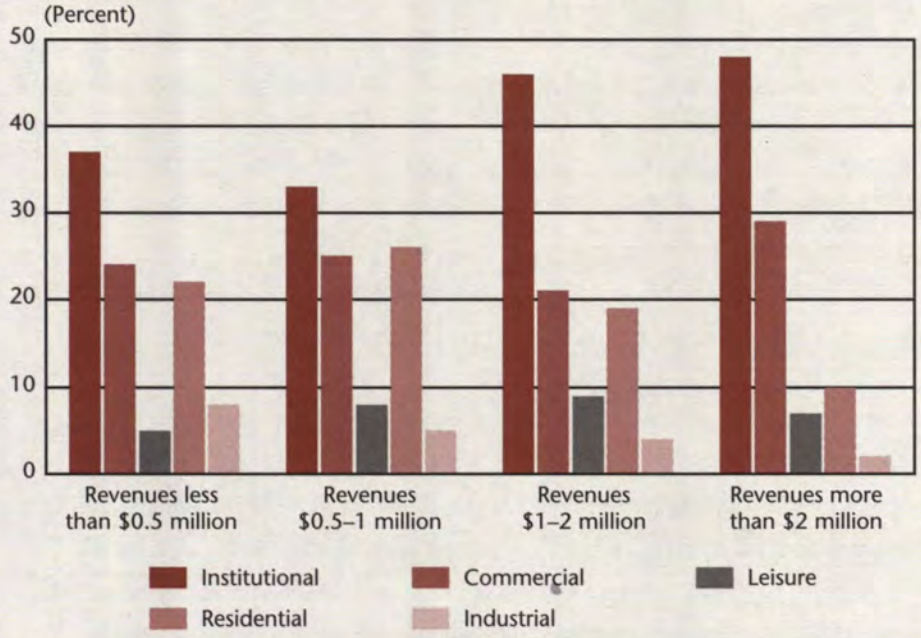
In the residential sector architects concentrate on multiple-unit projects and high-end, single-family homes

The demand for residential architectural services varies greatly from one region to another. In British Columbia, this market segment accounted for 27 percent of revenues in 1995 and was second only to the institutional market. It also represented a significant, albeit less substantial, component of architectural business in Ontario (12.5 percent of revenues).

There are some differences in the market focus of small and large firms. As can be seen in Figure 2, the largest firms in terms of revenues concentrate on the institutional and commercial market segments. While small architectural firms also derive the major portion of their revenues from these two markets, they devote more attention than large firms to servicing the residential and industrial markets for architectural services.

Larger firms focus on institutional and commercial markets

Figure 2. Importance of Market Segments, by Size, 1995



Source: Statistics Canada, *Architectural, Engineering and Scientific Services in Canada*, Catalogue No. 63-234-XPB.

Fee income is highest for institutional work

Fee income by building type has been fairly constant on a national basis from 1991 to 1995. Institutional work has been the largest category, amounting to 43–46 percent of total work over the five-year period. There has been some increase in work on leisure facilities, which increased from 6 percent in 1991–93 to 8 percent in 1995. Over the period, design of commercial buildings has declined from 30.6 percent in 1991 to 24.9 percent in 1995.

Professional Organization

Regulation of architects is a provincial jurisdiction

Architecture is organized on two levels in Canada, provincially and nationally. Provincial governments have delegated the responsibility for protection of the public interest in this area to self-regulating associations. Membership in a provincial architectural association is mandatory for any business entity offering architectural services to the public. Only persons registered with the association have the legal right to refer to themselves as architects.

The Committee of Canadian Architectural Councils (CCAC) is a forum for the provincial associations to set national standards for admission to the profession and the delivery of architectural services. The CCAC is an interprovincial coordinating committee of the 10 licensing bodies, and represents the profession nationally and internationally on regulatory matters.

The Royal Architectural Institute of Canada is a voluntary body whose mission is "to advance the cause of architecture and its practice in Canada." The RAIC's role is to provide the national framework for the development and recognition of architectural excellence through programs of awards, sympsosia, exhibitions, research, publications and practice support. The RAIC has individual members only, not businesses. Internationally, the RAIC fosters professional and cultural exchanges with foreign associations and assists in establishing commercial linkages with firms in other countries. Since 1985, it has also been actively involved in reducing barriers to trade in professional services in the United States, Mexico and Chile.

Recognizing the importance of a national approach to educational standards, the Canadian Architectural Certification Board was created in 1976 to administer program accreditation of schools of architecture and certification of educational qualifications of individuals. Architects in Canada are educated at one of 10 Canadian schools of architecture or through the RAIC Syllabus program. To qualify for licensure, an applicant needs to satisfy three requirements: formal education, work experience recorded throughout a period of "internship" and successful completion of registration examinations.

Practice Types

Architectural practices are organized in different ways, depending on the market segment being served and the preferences of the firm's principals. Most smaller firms follow an "atelier" model in which a principal and a few assistants or associates work on a project from start to finish. Some large firms operate on a "department" system whereby separate teams focus on the design, documentation and site review phases of a project. Most large firms, however, operate as a combined group of atelier structures set up around different principals.

Combined architecture and engineering firms exist in Canada, although they are less common than in the United States. Within such corporations, departments tend to be structured along disciplinary lines while processes are established to promote a common cross-disciplinary vision and coordination for the overall project.

Less common still are professional practices in businesses where design–build services are offered or specialty construction assemblies, such as prefabricated buildings or proprietary metal building systems, are promoted. In some provinces, mixed business and professional practices are not allowed due to limitations on practice ownership by non-professionals or perceived conflict of interest.

Many architects are employed by major corporations, utilities, institutions and governments. In addition, large construction companies and facilities management firms also employ persons with architectural training. Corporate architects who have maintained their licences are included in the count of total architects, but their activities do not contribute to the measured output of the architecture industry.

Self-insuring Professional Associations

In response to concerns about the liability of architects for damages resulting from design errors and omissions, Ontario established an insurance plan to provide errors and omissions (E&O) coverage for its members. The Ontario plan, established in 1987, has provided architects with low-cost E&O insurance for defined activities. Insurance premiums are based on the value of consulting fees paid on built projects only, and activities not directly related to construction are not insured.

Due to the narrow definition of architectural practice in the *Ontario Architects Act*, many practitioners believe that involvement in activities peripheral to design for the construction or enlargement of a building leaves them exposed to excessive liability. Some architects have

In 1987, the Ontario Association of Architects established an insurance plan to provide errors and omissions coverage

therefore removed themselves from assisting in real estate transactions, offering advice on building purchases, advising or recommending procedures for facilities management, building science investigations and a host of other related tasks.

2.4 Performance

Architecture is cyclical industry whose fortunes are closely linked to building construction

Architecture is a cyclical industry whose fortunes are closely linked to the cyclical fluctuations in building construction. The demand for architectural services is also affected by shifts in public sector spending. Changes in the climate for public investment will influence the strength of the important institutional segment of the architectural market.

Over the longer term, trends in the architectural market are governed by many of the same factors that influence the course of building construction. Among the more important influences are demographic factors, the growth rate of the economy and the growth of government. There are some significant variations in these factors across regions, which can help explain why architectural services have grown more strongly in some provinces than in others.

Although architectural activity in Ontario and the Prairies picked up in 1995, the real output of Canadian architects has declined significantly over the 1990s. As can been seen in Table 2, recent experience contrasts with that in the 1980s, when the industry was growing, albeit at a modest pace. The decline in the real output of architectural services over the 1990s mirrors the weakness in construction markets. The volume of commercial, institutional and apartment building construction in 1993, for example, was 24 percent below its 1990 level.

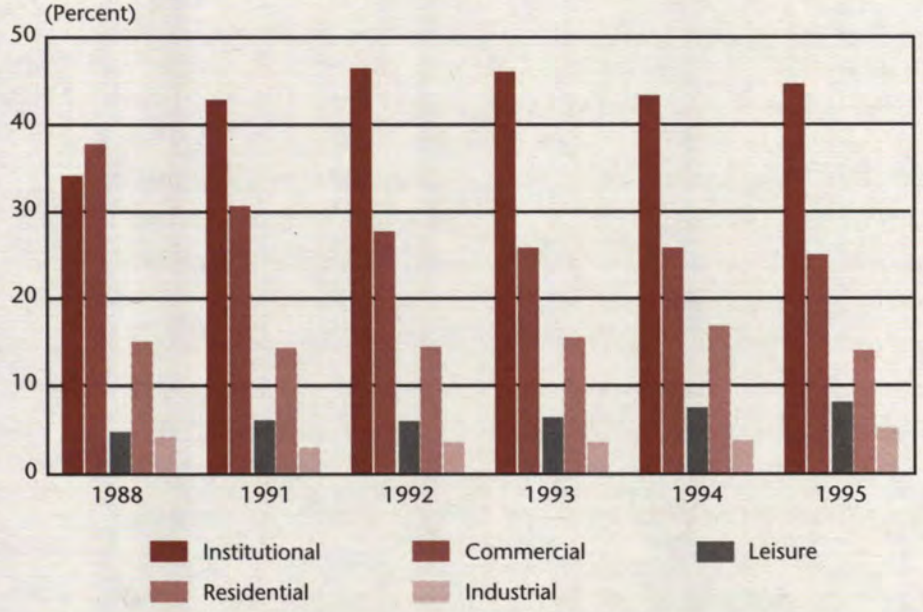
Table 2. Annual Rate of Growth in Fee Income (constant dollars)

	1982–88[a]	1988–91	1991–94	1994–95
		(Percent)		
Atlantic	5.4	0.7	–9.7	7.0
Quebec	7.7	–0.3	–5.0	2.7
Ontario	6.2	0.7	–9.5	13.5
Prairies	–9.6	5.4	–9.3	15.2
British Columbia	–6.8	21.4	9.7	–2.3
CANADA	1.4	2.8	–4.0	7.4

[a] The Consumer Price Index was used to adjust for inflation in the 1982–1988 period. A price index specific to consulting engineers in the building industry was used for the 1988–1994 period (Statistics Canada, Catalogue No. 62-007).
Source: Statistics Canada, *Architectural, Engineering and Scientific Services in Canada*, Catalogue No. 63-234-XPB.

Figure 3 shows that the commercial market segment has experienced a particularly severe decline in recent years. The institutional market was one of the stronger market segments over the 1988–92 period, but in the past few years it has simply kept pace with overall industry. The residential market segment has maintained a relatively stable share (about 15 percent) of the industry's declining revenues.

Figure 3. Revenues, by Type of Construction



Note: Data not available for 1989 and 1990.

Source: Statistics Canada, *Architectural, Engineering and Scientific Services in Canada*, Catalogue No. 63-234-XPB.

Demand for architectural services is influenced by demographics

Although recent data suggest the fortunes of the industry may be improving, architects have suffered from the prolonged impact of the 1990–91 recession on building construction. The decline in construction also reflects the pressure on federal, provincial and local governments to reduce investment spending as part of their efforts to get their finances in order. These developments have reinforced the impact of long-term demographic developments, which have resulted in a reduction in the number of people who exert the largest impact on the demand for residential, commercial and institutional accommodations.

Decline swept the country except B.C. in 1991–94

There have been significant disparities across the country in the demand for architectural services. While the architectural market in the Atlantic provinces, Quebec, Ontario and the Prairies shrank substantially over 1988–94, architects in British Columbia benefited from a mini-construction boom over the latter part of the 1991–94 period, when constant-dollar revenues grew at an annual average rate of almost 10 percent. In 1995, real revenues declined in British Columbia, but bounced back in most other parts of the country, especially the Prairies and Ontario.

Profitability

Reduced activity, lower commissions cut profitability

The weakness in the market for architectural services over the early 1990s resulted in downward pressure on fees. Lower prices of building structures combined with reduced commissions, and therefore higher fixed costs per unit of output, led to reduced profitability. However, the industry may have begun to turn the corner; the recent pickup in architectural demand has led to improved profit margins.

Profit margins on architectural services, which were over 20 percent in the latter 1980s, averaged only 8.4 percent over 1991–94. With stronger market conditions in 1995, profit margins improved to 12.5 percent nationally. Firms in Quebec, Manitoba, Saskatchewan and British Columbia have tended to enjoy profit margins above the national average.

Larger firms have slightly higher profit margins than small firms due to their ability to spread administrative costs over a greater output. While general and administrative costs (as distinct from project-related expenses) represent just over a quarter of total costs for firms with revenues of $2 million or more, they account for almost 40 percent of total expenditures for firms with annual revenues of under $500 000.

Human Resources

Architecture is a knowledge-based profession, and human capital constitutes its main asset. Decisions surrounding the development of human capital therefore are among the most important business decisions an architectural practice must make. Firms that are able to hire and retain innovative and productive workers have the best prospects for achieving success.

About 20–30 percent of the architect's input on a project involves the creation of a satisfactory building design. The remaining 70–80 percent of the work is mostly technical and requires a different but complementary set of skills. While architectural practices must have an ample supply of individuals with both technical and design skills, a firm's reputation will largely depend on its strengths in building design. It is by establishing a reputation for high quality and innovative design that firms are able to differentiate their products and reduce their vulnerability to competition from lower-cost competitors.

Design is minor part of work, major part of reputation

Architectural firms employ the following types of personnel: administrative support staff and architectural students from universities or colleges; architectural technologists or technicians (i.e. persons who have completed community college programs and who usually provide technical services in construction documentation, specification writing, site review and project management); graduate or "intern" architects (i.e. persons who have finished their university education in professional architecture and who are registered with a provincial professional licensing body as intending to pursue full professional qualifications); licensed architects acting in the capacity of senior employees or associate partners; and other licensed architects authorized to provide architectural services to the public through a business entity such as a sole proprietorship, partnership, corporation or partnership of corporations.

Architectural Technologists

Architectural technologists are persons usually with community college training who provide design services to the public through an architectural practice or, if self-employed, act as para-professionals offering a restricted set of design and construction services for classes of buildings that do not require professional involvement. In Ontario, architectural technologists are persons who have registered with the Association of Architectural Technologists of Ontario, an association formed to promote technologists. Technologists provide technical services to the architecture, engineering and construction industries.

Under the Ontario Building Code, any member of the general public may design and have built a building under 600 square metres in floor area and three storeys or less in building height, provided that the building is used for residential, business and personal services, mercantile, and medium or low hazard industrial occupancies only. All buildings larger or involving assembly, institutional or high hazard industrial occupancies must be designed by either architects, engineers or both.

Of every dollar spent by architectural firms, just under 50 cents goes toward employees' salaries and benefits. Based on industry data, the staff of the typical architectural office in 1995 could be subdivided as follows:

Registered architects	29%
Unregistered professionals with architectural training	13%
Support staff	17%
Other professionals [a] and technicians (including architectural technologists)	35%
Other [b]	7%

[a] "Other professionals" include lawyers and accountants.
[b] "Other" includes interior designers, engineers, landscape architects and urban planners.
Note: Percentages do not total 100 due to rounding.
Source: Statistics Canada, *Architectural, Engineering and Scientific Services in Canada*, Catalogue No. 63-234-XPB.

The employment mix is constantly evolving. For instance, between 1988 and 1995, the proportion of architects increased, while the proportion of unregistered professionals decreased. This trend, which is most noticeable in Ontario and Quebec, may reflect the effort of firms in these provinces to reduce overhead costs by eliminating specialized positions in favour of multi-skilled ones. It is also no doubt a result of the current oversupply of registered architects.

Weak job market holds back salary growth

There is a large pool of unemployed or underemployed architects across the country. This situation is expected to prevail over the near to medium term. The weak job market is also reflected in the declining salary levels for architects.

Technology

Architectural research contributes to innovations in the design and construction of a building. The research is usually aimed either at achieving economic efficiencies through the application of new materials or new processes, or at coming up with an innovative design that meets particular program or performance criteria. These activities may lead architects to develop new uses for existing materials or to identify new material requirements that need to be addressed by manufacturers and building industry researchers. In addition, architects working outside the direct service industry itself have contributed directly to some important advances in construction technology.

Architects and Advances in Construction Technology

Architects involved in building science or construction research often work outside conventional architectural firms and may not be entitled to refer to themselves publicly as "architects" if they are not licensed with a provincial association. Working with construction associations, building research institutes and large building material producers, they have contributed to important advances in construction technologies that have been made over the years.

Progress in building science has resulted in an improved understanding of systems performance and energy efficiency. In the past five years, advances have been made in window technology, building energy simulation, and the building science relating to low energy load and low environmental impact buildings. New materials and construction practices incorporating these latest advances could take 10 years or more to find their way into mainstream building practice. Currently, technologies for better insulation and ventilation are being incorporated in new housing under programs such as R-2000. These latter innovations are the results of research completed about 10 years ago.

Much construction research is undertaken in connection with the development of building codes. Currently the standards writing process is driving research in the areas of fire protection, smoke control, acoustics and building envelope design.

Architectural firms are clearly innovative, focussing on both product and process innovation. As pointed out in a recent Industry Canada report ("Innovation in Canadian Service Industries: Results of a Pilot Survey," Ottawa: Service Industries and Capital Projects Branch, June 1997), innovation is often viewed very narrowly, and this has led to the misconception that service firms are not innovative. This survey, in which 18 percent of the respondents were architectural firms, found that innovation was particularly important in acquiring new commissions for smaller firms. It was found that small firms innovate primarily to take advantage of new technologies and secondly to fill a perceived market gap. These results are consistent with anecdotal reports on the innovative process in architecture.

Small firms must innovate to take advantage of new technologies . . .

There are, however, some significant impediments to innovation by architects. Experimentation with innovative materials or designs may expose the architect to an unacceptable degree of liability. Although finished architectural designs are covered under copyright, it is difficult for

. . . but costs and risks are high

architects to derive a significant return from a major investment in design development. First, it is difficult for an architect to generate sufficient repeat business to capitalize on an investment in research. In addition, the pressure from clients to reduce architectural fees discourages research into new innovations. Moreover, technological advances in architecture, which tend to be small and incremental, diffuse rapidly through the industry; an individual architect can appropriate only a small part of the total gains from a new innovation. Statistics Canada prepared a customized run for Industry Canada, and reported that in 1995 research and development was undertaken by 11 firms at a total value of $584 000.

Trade

In 1995, according to Statistics Canada, the $17 million of architectural services that were exported represented about 2 percent of total architectural revenues. These figures understate the value of Canadian firms' activities in foreign markets, since they do not include sales by the foreign-based subsidiaries of Canadian architectural firms.

Few firms export but scope for trade is high

While most Canadian architectural firms seldom export their services, for others it represents an important part of their business. Some have subsidiaries abroad, and others have completed an extensive list of projects in areas from the Middle East and Africa to Europe, the United States and Asia. Project types are just as diverse, and include schools, hospitals, airports, museums, laboratories, shopping/office complexes, entertainment facilities, etc.

Trade in architectural services differs significantly from trade in goods. While the images and insights of architects are highly portable, the provision of architectural services also requires a familiarity with local conditions and cultures and a well-developed knowledge of local needs.

Canada is recognized for expertise in wood frame buildings

In 1995, the Export Council of Canadian Architects (ECCA) was formed to promote the export of wood frame buildings, including low to medium density wood frame housing, wood frame three-storey commercial and institutional buildings, as well as resort, ski and marina developments. This is an area of recognized Canadian expertise, and this segment of the building market is attracting increasing interest in Asian countries. The Export Council's primary market focus is Japan and the developing markets of the Republic of Korea and Taiwan. ECCA has approximately 10 members, who are currently all based in British Columbia (although membership is open to companies across Canada), and they are pursuing commissions in Japan to design sports facilities, housing, restaurants and hotels.

Domestic competition also increases

While falling trade barriers and the increasing ease of cross-border practice have improved the prospect for exports, they have also opened the way to increased competition in the domestic market. Foreign architects have recently secured some major projects in a tight Canadian market. For instance, the contract for the recently built Corel Centre in Ottawa was awarded to a U.S. architectural firm with experience in designing sports facilities.

When a foreign firm is hired to do work in Canada, generally it establishes a working relationship with a domestic firm located in the region of the proposed facility. The latter prepares the technical construction drawings and specifications and provides site review services. The local firm also hires the engineering consultants who develop documents and specifications related to their own discipline needed to complete the construction contract. Construction documentation and construction review accounts for up to three quarters of the total architectural fee and tends to be a comparatively profitable area of activity. Thus, although the foreign design architect receives the credit for the appearance of the building, the local firm may undertake the major share of the work and receive a substantial share of the fee.

3 CHANGING CONDITIONS AND INDUSTRY RESPONSE

3.1 General

Changing demographics and the efforts by corporation and public institutions to adapt to the pressures of an increasingly competitive global economy are changing the demand for facilities as well as for architectural services. The growth in new households is no longer supporting a strongly growing demand for new housing, while requirements for commercial and retail space have also moderated. Governments, hospitals and other public institutions have reduced staff and services and have lower accommodation requirements. In both the public and private sectors, the emphasis is increasingly on designing buildings for different mixes of activities and on the refurbishment and adaptation of existing facilities to meet new requirements.

The demand for architectural services is also being influenced by new corporate philosophies. Corporations have become less inclined to view accommodation as a symbol of their identity and a way of conveying a desired public image. In the demand for architectural services, greater importance is being placed on considerations such as efficient space usage, occupant comfort, and reduction of facility operation and maintenance costs.

Adult communities and senior residences offering meals and health care are area of expanding demand

In the residential market segment, adult communities and senior residences offering meals and health care are an area of expanding demand. New forms of accommodation will also be required to serve those who had depended on government housing programs. This could lead to various forms of cooperative housing and multifamily-unit housing or co-housing.

Architectural firms will continue to face intense competition in coming years. This will exert downward pressure on fees and force firms to continue their search for ways to reduce costs and increase productivity. Rationalization pressures are likely to result in a sorting process that will lead firms to stay small and specialized or to combine with other professionals to form large, multidisciplinary organizations that can realize economies of scale and scope.

3.2 Technological Change

Architects are benefiting from a number of important technological innovations in the areas of telecommunications, office computerization and electronic document preparation.

Telecommunications

Innovations in telecommunications permit expansion into distant geographic markets and enable alliances among firms in different cities and countries. Drawings can be quickly transferred electronically around the globe, and partner firms in different time zones can work on projects around the clock, allowing faster project delivery times.

As public safety depends on the professional review of the design architect or architect of record, increasing production speed is useful, as long as it does not overtake the ability of the architect in charge to review and accept the progress of the work. As production technologies change, architects will be challenged to maintain appropriate and responsible levels of control for their projects.

Office Computerization

Word processing, computerized project tracking and electronic bookkeeping offer the prospect of significant cost savings. Once the professional staff becomes familiar with word processing, accounting and communication software, most of the administrative support functions of an architectural office can be done by architects themselves.

While computerization reduces office costs, it impacts indirectly on professional fees

Architectural fees have been adjusted in some cases to take account of the time architects devote to clerical and support, as distinct from professional, functions. In the case of sole practitioners, this has had the effect of lowering architects' average rate of pay.

Electronic Document Preparation

Electronic preparation of project drawings and specifications allows designs to be prepared more quickly and with fewer personnel. The biggest productivity gains have been achieved as a result of the increased ability of architects to quickly modify drawings, duplicate sketches, select and duplicate detailed areas of drawings, and instantly rescale drawings.

Sophisticated imaging techniques are slower to catch on

More advanced computer production techniques such as three-dimensional modelling, integrated generation of materials lists, area takeoffs, automated cost estimates, material cutting plans, etc., are currently available but are not fully integrated for various reasons. One reason for the slow uptake of these advanced computer-aided design functions is that they require a high level of input and add greatly to the amount of information that must be inserted in project documents. This additional information is often much more detailed than the minimum required for builders' bids or municipal permits.

Computer-generated video presentations are common for large real estate developments

Computer-based presentation techniques, based on three-dimensional modelling including photo-realistic rendering, virtual walk- and flythroughs and multimedia presentations, are available but are still expensive and time-consuming. For some purposes, earlier presentation techniques, such as perspective renderings and scale models, are more cost effective. Computer-generated video presentations are becoming common for large real estate development projects, but are seldom used in other commercial assignments.

Before the use of computer-aided design and drafting (CADD) for the preparation of project documents became widespread, a client received hand-marked copies of the construction drawings from the architect or builder indicating any changes from the tender documents. This "as-built" information was then transferred by the client or the architect to the client's space planning and facilities management (FM) documents. With CADD documents, the "as-built" information is usually recorded on the same computer files that store the original tender documents. In turn, copies of the original files can be used directly for FM, with easy addition of new information and removal of information no longer required.

CADD speeds input of modifications

Whereas previously clients would have to prepare their own FM drawings from the "as-builts," with CADD files the amount of work required to modify construction drawings to FM drawings is greatly reduced. Clients commonly request that their architects provide project drawings as live files and often on a computer program compatible with the client's FM system programs. In an extremely price competitive market, this additional value will often be added to the basic services in the client/architect contract without additional compensation.

When contract documents are used for secondary purposes, there is a risk of confusing what was stated in the original contract and what was a later change. Liability issues surrounding handover of easily modified CADD drawings have not been clearly resolved. In addition, by relinquishing drawing information without additional compensation, the architect weakens his/her claim, as owner of the design copyright, to exercise control over the client's further use of the design.

3.3 Changing Project Delivery Methods: Design–Build

In the traditional North American project delivery method, sometimes called design–bid–build, the building owner enters into separate contractual arrangements with the architect and the contractor. Under pressure to speed up project delivery and reduce costs, owners have been attracted to a different system referred to as design–build. A design–build arrangement is

negotiated between the owner and builder, with the architect being employed by, or in partnership with, the builder. Design–build is seen to provide owners with improved cost control and a more expedient procurement process.

The move to design–build in large commercial projects has caused problems over the short term, requiring architects to adapt to an entirely new set of contractual structures. Under design–build, the builder could be the architect's client or partner, which could lead to conflict-of-interest concerns. As well, design–build requires architects to be more flexible, and to accept new forms of risk and new types of liability. Even at the bidding stage, firms must contend with significant risk in the sense that their investment in developing a design proposal (which will amount to about 30 percent of the total contract work for firms that make the short list of a bidding competition) may yield little or no return.

Design–build requires new contractual arrangements

The existing regulatory environment has not caught up to changes in project delivery. Some provincial regulations are unclear regarding the responsibilities of an architect in design–build arrangements. In addition, under existing professional liability insurance, architects are subject to increased risks in working as a design–build team leader. When the design–build entity is one integrated firm, there may be no coverage available for design errors and omissions. Moreover, architectural firms might have difficulty acquiring project bonding because they are not as highly capitalized as construction companies.

Besides their direct involvement in design–build projects, architects may serve as consultants to the project owners. They may be retained to define a project and to help develop the documentation that is needed to request bids from design–build teams. Architects may also provide an independent review of the performance of project developers.

3.4 Trade

A stagnant domestic market and a reduction in the barriers impeding cross-border practice are prompting many architects to explore opportunities outside Canada. International trade agreements covering architecture, such as the provisions in the North American Free Trade Agreement, implemented in 1994, have facilitated exports, but they do not completely open the door for architects hoping to practise in foreign jurisdictions. While these agreements allow architects to qualify for a foreign licence, there are still local requirements that must be met before an architect can practise abroad. To penetrate foreign markets, architects must become knowledgeable about local building codes, the implications of different climatic conditions, and the impact of cultural differences on building needs and design preferences.

Many architects explore export opportunities

Canadian firms have met with success, exporting either on their own or as part of integrated design and construction teams. For example, Ferguson Simek Clark Engineers and Architects Ltd. has developed an expertise in arctic design and construction technology, which it has used to gain entry into the Siberian market. C. A. Ventin Architect Ltd. has created public–private partnerships to finance and develop school projects in a number of countries. Norr Partnership Limited, Architects and Engineers has established two offices in the United Arab Emirates, where it has provided design and project management services for hotel and office construction. The firm has also designed airport facilities in Asia and Iceland.

Scott Associates Architects Inc. (SAAI), a firm specializing in aviation and mass transportation projects, has designed Prague's Ruzyne International Airport. In an alliance with a New York firm, Adamson Associates Architects of Toronto have been the executive architects responsible for design development and contract documents for office complexes on three continents. These prestigious projects include the World Financial Centre Battery Park New York, London's Canary Wharf, and the world's tallest building, the twin towers of Malaysia's Kuala Lumpur City Centre.

Baker McGarva Hart Ltd. was part of a design–build team with SNC-Lavalin Inc. to design a light rail transit station in Kuala Lumpur, Malaysia. The train sets for this project are being manufactured in Canada by Bombardier Inc. Bregman and Hamann Ltd. has designed five airports and a school in China.

NST promotes development of international strategy

The federal government recently established the Construction Architectural and Engineering Services (CAES) National Sector Team (NST) to better coordinate federal and provincial programs and ensure that government resources are targeted to supporting the international business development interests of CAES firms. The NST pools expertise from federal and provincial governments, industry associations and private sector companies with a view to developing an international strategy for the CAES sector. The international business strategy for the CAES sector can be found on Industry Canada's web site *Strategis* (**http://strategis.ic.gc.ca/sc_mrkti/ibin/engdoc/1d1p.html**). The strategy contains a chapter on architectural services.

In global markets, major clients are placing increasing importance on practitioners' ability to satisfy well-recognized quality assurance standards. International standards such as ISO 9001, developed under the auspices of the International Organization for Standardization, provide clients with a higher level of confidence in the work performed by architects. ISO registration,

however, has been problematic for many architectural firms because of the costs of complying with requirements and because ISO accreditation does not provide an advantage in the firms' traditional markets. Small firms are heavily influenced by the management styles of their principals and have little need for formalized management procedures as elaborate as ISO 9001.

The Architectural Institute of British Columbia has introduced a pilot project to monitor the process whereby firms register under ISO 9001.

3.5 Human Resources

Firms are responding to weak market conditions by striving to extract greater value from existing resources. Each member of a practice is now expected to perform more tasks. With the emphasis on versatility and adaptability, the "departmental" form of organization has become less popular. Firms are also relying more on entry-level architects to handle production tasks rather than technologists, who tend to be less versatile.

"Virtual offices" reduce overhead

To increase their flexibility, firms are turning toward greater use of freelancers, whom they can hire on a per-project basis. Firms may take advantage of new digital technology by transferring documents to freelancers as well as to specialists in other firms who need them. In the extreme case, the architect may focus on playing the role of broker and advisor, with all the design, document production and other major tasks being contracted out. This "virtual office" allows large savings in overhead, but it may reduce the opportunities for creative collaboration among architects. There may also be a loss in the degree of supervisory control exercised by the architect of record.

Architects invest in lifelong training

To take full advantage of emerging technologies, architects must invest in ongoing education and skills upgrading. Human capital investment, however, tends to be costly and difficult, particularly for smaller architectural firms.

Another issue that has arisen as a result of the weak market conditions is the increasing difficulty that new architectural graduates face in making the transition from school to work. Since fewer positions are available, graduates have trouble obtaining the experience they need for registration. Whereas it used to take three years, today it is not uncommon for intern architects to take five years to meet registration requirements.

Human Resources Development Canada recently sponsored a Design Sector Human Resources Development Strategy prepared by Price Waterhouse titled *Shaping Canada's Future by Design* (Ottawa: HRDC, 1996). The report addresses the needs of the overall design community, which includes architects, landscape architects, interior designers, graphic designers and industrial designers, all of whom are eligible for membership in the newly created Alliance for Canadian Design. Two of the report's principal recommendations call for upgrading the professional skills of designers and for increasing awareness among businesses and the public of the design sector's potential for wealth creation.

4 GROWTH PROSPECTS FOR THE INDUSTRY

4.1 Demand Outlook

Architects in some regions are beginning to see the signs of a pickup in commercial construction and a strengthening in architectural demand. While vacancy rates in Quebec and Atlantic Canada are still high, prospects have begun to brighten in the western provinces and Ontario. In British Columbia and Alberta, strong immigration from other provinces and abroad is contributing to the need for increased accommodation. Single-digit vacancy rates for commercial office space in Vancouver and Calgary suggest that new developments are on the horizon. Architects in the western provinces are looking as well toward the spinoff demands from planned energy and forestry developments. Vacant office space is also being absorbed, albeit more slowly, in Ontario. Demand for architectural services in this province will be supported by the continued strength of Toronto as a major international commercial centre, along with a number of major developments including the proposed redevelopment of Toronto's railway lands and the reconstruction of Terminals 1 and 2 at Pearson International Airport.

Near term holds promise for industry rebound

The rebound in the commercial market is likely to strengthen in coming years as general economic conditions improve. As households realize income gains, the demand for recreation, retail, hotel, restaurant and other "income-elastic" forms of accommodation can be expected to increase. Although architects derive a smaller proportion of their fee income from residential requirements, the pickup in the housing market should contribute to the industry's rebound. The growth in households has exceeded the growth in the housing stock over most of the 1990s, suggesting that the housing market will receive a boost in coming years from the need to catch up to increased requirements. The institutional market is likely to remain weak over the next few years as fiscal pressures restrain construction spending by provincial and municipal governments. Forecasters project, however, that fiscal pressures will abate and institutional demands for architectural services will also begin to increase before the end of the decade.

Over coming years, the prospect therefore is for a rebound in the demand for architectural services. The industry can look forward to a significant recovery as economic conditions improve and as the stock of unfilled commercial space hanging over the market is eliminated.

Over the longer term, the outlook is for moderate growth in the real demand for architectural services. The industry will not benefit from demographic factors as it did over much of the 1970s and 1980s, when the accommodation needs of the baby-boom generation stimulated

housing, and commercial and institutional building demand. But with significant real growth in incomes, Canadian households will increase their demand for goods and services, and this will generate the demand for additional and new types of commercial and institutional accommodation.

Demographic trends suggest steady but not dramatic growth

While the overall demand for the industry's services is likely to follow a moderate growth path, there will be areas of particular market strength. These include the design of retirement and long-term care facilities. The renovation and modification of existing buildings is likely to be a major source of architectural revenues in coming years. Some buildings constructed during the 1960s and 1970s were planned to last only 20–30 years, and many elements of their mechanical and electrical systems are now becoming obsolete. In more extreme cases, building envelopes require extensive work. This area of activity will increase as the building stock ages. Architects are in the best position to determine how existing structures can be adapted to meet new functions, and this is likely to become an increasingly important market.

In addition, architects are likely to play an increasingly important role in contributing to the broad social objective of sustainable development. The industry will be challenged to construct facilities that are more environmentally friendly and to make greater use of materials that can be recycled, are environmentally benign and require fewer resources.

Architects take more time to promote design

The future demand for architectural services will be shaped not only by construction trends, but also by public perceptions about the contribution of architects. The industry has traditionally been poor at demonstrating the economic value contributed by architectural design. Over the past few years, however, architects have become more active in promoting themselves. A 1992 public opinion survey commissioned by the Architectural Institute of British Columbia found that the public in general recognized that architects brought a higher level of quality to projects with which they were involved. Continued public education will be required to build recognition of the economic value created by architects.

4.2 Current Industry Strengths

The small and medium-sized firms that characterize most of the architectural industry are well positioned to provide flexible, innovative and personalized services. Small firms have low overhead and are thereby better able to contend with the swings in market demand that are a feature of construction activity. As well, Canadian firms have taken advantage of technological developments in computerization and telecommunications, which have significantly improved efficiency in the provision of architectural services.

The demands of the Canadian climate have promoted the development of an architectural industry that excels in building science and cold weather construction applications. In addition, Canadian firms have gained significant experience in large commercial developments through their participation in Canada's expanding real estate market over the past three decades. Canadian firms have expertise that compares well with that of firms in the United States and other industrialized countries.

4.3 Current and Future Competitiveness Challenges

An important challenge to the industry is the harmonization of provincial regulations governing the practice of architecture. Although all Canadian provinces have similar requirements for education and experience, architects may not practise in another province without first registering with the architectural association in that province. Differing requirements across provinces hamper firms from offering architectural services more widely across the country, thereby limiting specialization and preventing them from fully benefiting from economies of scale.

As is common in many professions, provincial governments have delegated the regulation of architectural practice to associations within the province. These associations license firms and individuals who offer architectural services by issuing Certificates of Practice. The Reciprocity Agreement of Canadian Architectural Licensing Associations is an accord that permits individuals to register and practise in another province. Nevertheless, the requirement that architects pay the full costs of maintaining a licence in other jurisdictions where they may work only occasionally remains an impediment to interprovincial trade.

In addition, the wide divergence of provincial requirements governing architectural firms and the rules for professional conduct tends to restrict firms from offering their services outside their home jurisdiction. As a result, the 10 provincial associations of Canada are supporting examination of the following issues: definition of the practice of architecture; a model for a national Code of Conduct for the discipline, including a model definition of misconduct, continuing education/professional development, and common rules for ownership, control and the structure of architectural firms.

Finally, the Agreement on Internal Trade, which came into effect in July 1995, contains provisions to ensure equal access to government procurement for all Canadian firms. Nevertheless, some professional services, including architectural services, are currently excluded from its scope. A challenge for the industry and their professional associations is to work with their

"Canadian architects offer the world a strong methodological approach and practical planning solutions. The development industry has forced us to be very efficient in our designs."
— Derry Robertson, Crang and Boake Architects, Toronto, 1996

Provincial barriers limit mobility and specialization . . .

. . . and fragment domestic market

respective provincial governments to include the services of architects within the ambit of this accord.

Canadian firms have limited experience in some areas . . .

Multidisciplinary consulting firms and design–build firms are uncommon in Canada. As a result, Canadian firms have little experience with integrated project delivery and often do not have well-established links with engineers, developers, financiers and others who could partner in national and international design–build projects. In the United States by contrast, the majority of the major firms offer an integrated package of architectural and engineering services.

In addition, the majority of Canadian firms lack the size, experience and resources to effectively market their services abroad. There have been some notable exceptions where firms have been able to successfully export the expertise gained in areas such as cold weather development and the design of institutional, entertainment and transportation facilities.

. . . must pool resources . . .

Strategic alliances allow firms to pool resources and share the risks associated with efforts to penetrate foreign markets. Canadian firms face the challenge of developing alliances that will improve their export prospects. There is scope for cooperation between Canadian architectural firms with complementary skills or resources, among architectural firms, engineers and real estate developers, and between domestic firms and foreign architectural firms, which can facilitate the entry of Canadian architects into new markets.

. . . promote better understanding among clients

Architectural firms also face a number of challenges in promoting better understanding among domestic clients about their services. For example, with recent technological advances, small firms have the capacity to provide architectural services for quite large-scale developments. This is not widely understood, however, and small firms tend to be at a significant disadvantage relative to larger firms when competing for major institutional and commercial projects. Also, architects' work is often viewed narrowly. Some architects, for instance, have found difficulty in gaining recognition that they are competent to participate at the preliminary investigation or feasibility study stage of a project.

4.4 Future Opportunities

Canadian architects are recognized for their expertise in the design of commercial, entertainment and office complexes as well as institutional buildings such as hospitals, educational facilities, museums and airports. They are also noted for their experience with wood frame structures and engineered wood products as well as their knowledge about construction for cold climates. Through strategic alliances, Canadian firms could better position themselves to take advantage of international market opportunities in these and related areas.

Canadian expertise needs to be made better known

The OECD countries, which are major users of architectural services, are generally well served by local architects. Canadian firms need niche expertise and the resources to mount strong marketing efforts to compete effectively in these countries. Eastern European countries have major construction requirements and could benefit from the expertise of Canadian architects in cold weather construction, infrastructure repair and other areas. Canadian architects have been active in the Middle East since the oil booms of the 1970s, and this should be a continuing source of export business.

Developing foreign markets takes time

The markets of China and Southeast Asia have been expanding rapidly, and there are significant opportunities in these countries for Canadian architects. Similarly, design of wood frame buildings is a service in demand in Japan and the Republic of Korea. These can be lucrative markets but they are also risky and expensive to penetrate. It could take many years and a considerable investment for Canadian firms to develop the necessary contacts and networks.

In the foreseeable future, the fortunes of the industry are likely to depend largely on developments in the domestic market. Here, architects will need to address a growing demand for the adaptation and reuse of existing structures. Infill and urban intensification are likely to become more important as downtown space in major centres becomes increasingly scarce. Other growing areas of activity are likely to include repair and renovation of existing commercial structures, energy efficiency retrofits and the development of mixed-use projects in underused commercial premises. Concerns related to environmental quality and sustainable development are likely to generate demands for structures that can meet increasingly stringent standards in terms of energy and material usage as well as environmental performance.

4.5 The Bottom Line

Architecture is a mature industry composed mainly of small firms and is subject to the requirements established by provincial licensing authorities. Canadian firms are primarily focussed on the domestic market. While Canadian architects are internationally respected for their expertise in a number of areas, only a small percentage of firms are in a position to provide the integrated package of services that is needed to pursue large-scale international contracts. Through strategic alliances, however, some members of the industry should be able to better position themselves to pursue foreign market opportunities.

"Architectural firms will become more specialized, as have many other professions, due to the design complexity of major facilities and to improve efficiency."
— Bill Chomik, president of the RAIC 1995–97

The industry has undergone a significant shakeout following a six-year period of market weakness. Firms are taking advantage of the opportunities provided by new technologies to improve efficiency. They are also changing their hiring practices and their methods of operation to become more versatile and more flexible. In the new environment, architects are having to expand their focus from primarily designing new facilities, to improving the quality of the nation's existing building stock. Firms that can develop innovative approaches for renovating and reusing existing structures and for satisfying society's environmental and sustainable development objectives are likely to have a promising future.

The professional associations are starting to recognize non-traditional areas of architectural expertise that relate to activities other than the enlargement or construction of buildings. This broadening in the recognized scope of the profession is likely to continue. There is also a need for architectural associations to become more proactive in expanding public understanding about the nature and economic contribution of architectural services. As well, efforts should be devoted to removing the remaining regulatory impediments to interprovincial trade in architectural services and to facilitating participation of Canadian architects in the increasingly important design–build market.

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