# Succeeding by Design -

## A Perspective on Strengthening the Profession of Architecture in Ontario and Canada

*Prepared for:*

The Ontario Association of Architects

*provincial association partners:*

Architects' Association of New Brunswick

Manitoba Association of Architects

Nova Scotia Association of Architects

*and the national association:*

Royal Architectural Institute of Canada

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November 2003

## Foreword

"Succeeding by Design" is an outside-in perspective on strengthening the profession of architecture in Ontario and Canada. We have gathered publicly available information, as well as proprietary information from the Ontario Association of Architects (OAA), and from other professional associations in Canada and abroad. We have conducted one-on-one interviews with architects, and those that pay for architectural services, from all across Canada.

The data and analysis presented in "Industry Dynamics" and in the appendices is the most exhaustive set ever compiled for the industry in Ontario. For practitioners hungry for information on the economic landscape, it will be of great interest to understand their industries' recent economic past, present, and future. Our sophisticated economic model, which surfaces only occasionally in the body of the text, is introduced below and in the appendices. In its completion, its appetite for data heightened our understanding of the industry, its output challenged our assumptions and underlies all of our findings.

A choice was made early in the study to keep names of architects and clients anonymous. And it has been successful in promoting frankness among interviewed clients and architects. Unfortunately, some of the openness related to sources of competitive advantage for individual firms and cannot be shared in detail. Furthermore, there are a wide range of practices in the Ontario and Canadian environment. An a la carte set of recommendations for individual firms – each with their own inventory of skills, and visions for their practice – is, consequently, impossible. We are confident, though, that the 'Firm Recommendations' will stimulate thought and help firms of all sizes fine-tune their business strategies.

Of the most interest to practitioners and to associations is perhaps the outside-in perspective that the data, model, surveys, and interviews gave us. In the 'Overview' section, a high-level interpretation of the industry is given, which we expect to be provocative and instructive for both practitioners and associations. There is a separate set of recommendations for the associations in the 'Association Recommendations' that outline various approaches for associations to continue to be good stewards for the practice of architecture in Ontario and Canada.

It has been an honour to work with the OAA. The Executive Director, Brian Watkinson, and the staff have been focused and passionate in their pursuit to see the profession "Be The Best." Special mention should be made of the very effective Kristi Doyle and Kelly Ayres. We would also like to thank members of the Steering Committee for their valuable comments during the course of our work. The Committee included OAA president, Paul Mitchell, and volunteers, Craig Applegath, David Pontarini, Rick Haldenby, Lesley Watson, Ken Trevelyan, and Chris Fillingham.

**A brief note:**

**…on data sources**

Financial data was gleaned from several sources for Ontario, the most important of which is the OAA's Indemnity Plan (now the Pro-Demnity Insurance Company). Our analysis on revenues, firm size and composition in Ontario uses Indemnity Plan information. Similar information for the other partner provinces typically relies on publicly available information gathered by Statistics Canada. Aggregate information on building permits, profitability, wages, expenses, and salaries for all provinces is also from Statistics Canada. Information on interest rates, exporting, and wages was supplied by the Bank of Canada, Revenue Canada, HRDC, and Industry Canada.

For Ontario, the exhaustive information from the Indemnity Plan was complemented by two groups of detailed surveys (on practices and members) conducted by the OAA. The timing of the surveys, in 1996 and again in 2002, coincides with recent lows and highs in construction activity, and provides valuable frames of reference. Additional surveys, reports, and conference material from the OAA, as well as the MAA and RAIC, were also drawn upon. Publications from other national associations and governments were explored, along with those of leading architectural/engineering management companies in the United States. The growing body of literature on the management of professional service firms was also accessed.

There are limitations on the state of information on architectural services in Canada. Some stem from the privately held nature of the industry and the lack of individual firm performance details. Statistics Canada is understandably diligent about this, and does not provide disaggregated information on firm performance that allows relationships to be drawn between specialization, size, and financial performance. Correlations from OAA surveys were able to compensate for this for the period between 1996 and 2002.

Furthermore, the measurement of the economic importance of architectural (and engineering) services output is not always straightforward outside of information collected through survey methods; for many higher-level statistics regularly gathered by government agencies (such as imports/exports, research and development spending), architectural services is most often absorbed in the broader categories of services output such as business services or construction activity.

**…on our model**

We have used an elegant and efficient econometric model to understand the behaviour over time of "licensed architects," "other employees" (non-architect staff), and "practices."[1] For the Ontario models, the explanatory variables include gross fees from the Indemnity plan, building permits (total, residential, commercial, industrial, and institutional), and bank rates. The model for Manitoba used a construction industry wage-rate index in Winnipeg in lieu of gross fee information.

The goal of the models for both provinces is to capture the behaviour of these variables, to test their significance and then relate them in econometric formulas to replicate the behaviour of the industry. For the Ontario model for licensed architects, scenarios matching potential alterations in the general economy were analyzed by modifying the variables in the model.

A methodology called dynamic specification was used to allow the models to respond to the volatility of fees, permits, and interest rates. Dynamic specification involves the interrelation of variables using the value of changes of variables from one and two years previous, and not the actual value of each variable. The dynamic specification also incorporates various lagged terms to reflect adjustment lags in these relationships. Residuals (error terms) are also incorporated to ensure that a long-run solution is imposed. Findings from the model are presented in the 'Industry Dynamics' section and in the appendices.

**…on terminology**

Throughout the text, "architects" typically means architects licensed with the OAA – though the majority of references apply equally to members of the MAA, AANB, NSAA, and members of the RAIC generally. Similarly, "practices" and "firms" refers to companies with certificates of practice in Ontario. "Basic" or "traditional" services refer primarily to regulated activities, as outlined in the Architects Act of Ontario. "Clients" refers to the people we've interviewed from public/private sectors in Ontario, Manitoba, New Brunswick, Nova Scotia, Quebec, and British Columbia.

[1] The model has been used recently in the construction industry in Britain by Briscoe, Geoffrey and Robert Wilson in "Employment Forecasting in the Construction Industry," Avebury, Ashgate Publishing Limited, 1993.

**Overview**

The practice of architecture in Ontario, and across Canada, is exceedingly difficult. Architects encounter many regulatory, legal, contractual, insurance, financial, and project management issues in their day-to-day practice, and must keep up with ever expanding frontiers of technical knowledge (components, materials, systems, software, communications) within a very cyclical industry.

Architects have changed the way in which they do business. Some have made radical changes, while others have modified their business approaches and service offerings in more conventional ways. In Ontario, the ever-shifting ground has not eroded beneath their collective feet, and by all recent measures of economic performance, practices of different sizes and orientations have performed well in the most recent upswing in construction activity. It is also true, however, that opportunities to be regularly compensated at levels commensurate with responsibility and training, and to act as knowledge engines for the construction industry, have not been fully realized.

As the complexity of building construction increases, architects have continued to be an integral source of value for their customers, though they move ever closer to the ranks of most other service industries, where overlapping services are offered by a multitude of providers. For architects, these providers include interior designers, construction managers, technologists, quantity surveyors, design-builders, and a variety of specialized consultants (from elevator to life cycle-costing consultants).

The growth in the array of providers has muddied the competitive landscape, but opportunities continue to abound for practices that envision the new providers as sources of knowledge and service, which may be collaborated with, or competed against. Likewise, architects that see such opportunities in the competitive landscape envision their own practices as sources of knowledge and service, which must be chosen to be out-sourced by clients who cannot perform the service with a similar level of expertise, at a similar cost - or in other words, cannot achieve the same level of value.

This is not how some architects and clients understand their relationship. The regulated nature of the activity often leads both to believe that their engagement is something other than an outsourcing decision based on value; a dangerous interpretation for an architect's own financial security and for the prospects of the industry. For this group of architects, there is little low-hanging fruit on the Architects Act tree. Financially successful practice is characterized by architects acting as 'trusted advisors,' and by being different from their competitors in a way that clients understand and value.

For proposal calls within the confined boundaries of architectural services, an important component of competing value propositions is, and always will be, price. Some architects believe that there should be a fee schedule. On legal grounds, a mandatory or recommended fee schedule is a non-starter in Ontario. On practical grounds, it is impractical. From the standpoint of fostering a collective understanding that will lead to

a strengthened profession in Ontario, it is counter-productive. The 1989 fee schedule nonetheless remains the primary pricing tool for many architects and clients (particularly public), and a call is often heard from members for an updated version.

In other settings with fee schedules, including in Ontario's recent past, they are disregarded by a variety of architects – including those with low overheads, those with efficient operations, those who intend to charm their way through change orders, those answering client demands of less design and administration responsibility, those who underestimate the potential demands of the job, those who misunderstand how far their fee needs to go to sustain their practice, and those who well understand how important the particular project is to their long-term goals of maintaining and acquiring reputation and expertise.

As the demand for basic services tail off with construction lulls, fee schedules are more strenuously disregarded, as some members cry out for more adherence among 'fee cutters.' The reality of competition is such that even if a sustained campaign could be conceived of (and afforded) that would raise the level of awareness among the public of "design" in Canada, higher fees must still be justified, vis-à-vis competitors, based upon the ability to deliver superior products at higher levels of service. With this mentality in mind, many practices have extended their service offerings to include activities that provide value to clients in new ways - including conducting feasibility studies, post-occupancy evaluations, facilities management, and adding new technology to facilitate project communication and client reporting.

The winning value proposition will differ by client. Clients are variously constrained by process and finances, and variously motivated by factors including public approval, stakeholder satisfaction, "salability," and long-term functionality. New project delivery methods, such as P3 and design-build, reflect these motivational and financial constraints, and involve the outsourcing of architectural services by new types of clients. Rapid short-term growth of such project delivery methods is not foreseen in the Ontario market, though long-term growth for both is likely, and presents opportunities for those firms in Ontario and abroad who choose to deliver value in such engagements.

The 'brain surgeon' analogy is used often by architects, and usually refers to the relationship between premium prices and expertise. This is a useful analogy to present to clients, and instructive to understand the industry if construed broadly to mean that premiums can be charged for uniqueness - and that there are disproportionate rewards for first-movers who respond to new or unmet client demands. The key to success at 'professional services' is being different than competitors in a way that matters to the clients. What should also be remembered, too, is that when shopping for professional expertise, on their own, many clients are unable to distinguish between outstanding technical work and competent technical work, and based upon their motivations and constraints, may intentionally choose the competent.

In general, clients were very impressed with the technical knowledge, and the design (as a noun) supplied by architects, but identified areas for improved service. It is in these areas where architects can distinguish themselves from each other, and from other 'outside' competitors. Service quality is separated from product quality in the minds of clients (and by all of us as clients). Some clients felt uncomfortable with the level of communication during the building phases of the project, and did not necessarily feel that their goals were fully aligned with architects' before, and during, construction.

Being more 'client-centric' in this sense does not imply that architects must sacrifice standards of good design; on the contrary, it is an opportunity to inform, involve, challenge, and educate the client – to turn them into experts on the value of an architect. This aloofness, and architects' problems with other players on the project (especially contractors), contributes to the unhelpful perception of architects as somewhat 'arrogant.'

In architects' parlance, the usage of 'commission' as a synonym for 'project' can be understood as another manifestation of a perception gap between architects and clients – a gap that leads clients to believe that architects cost them money, whereas other service providers like project managers, save them money. Similarly, celebrity architects are rightly held up as role models for innovative and inspiring architectural design, but should not be assumed to have business models and approaches to the practice of architecture that can be widely emulated.

The strategy of many firms in Ontario often remains implicit. When the construction industry is buoyant, limited resources at firms are dedicated to securing and completing projects, knowing that the boom may soon end. The many hats that must be worn during these times makes it very difficult to accomplish everything, and usually unconsciously leads to a decision to defer maintenance on developing long-term strategy.

Like the cobbler's children with poor footwear, an architect's attention to the design of his own businesses is sometimes neglected. Long-term strategies for acquiring and developing skills in the complex and ever-changing network of client needs and overlapping providers are often under-explored. A greater knowledge of business fundamentals would help many to provide process and information needed to make short-term decisions aligned with long-term plans. Compared to peers in other service industries (inside and outside the construction industry), many architectural practices across Canada have room to improve the financial efficiency of their practice to achieve higher levels of profitability (including better use of cash, better turnover of accounts receivable). An increased awareness of business fundamentals would also counter the perception of architects as lacking business skills – a perception which keeps clients from thinking about engaging architects in new ways.

Opening up the ownership requirements for firms will give practices more viable options for long-term planning – including providing funding for expanded service offerings, for organizing succession plans – and would allow for more collaboration across activities and sources of knowledge in the construction industry. The prospects of architect's forming longer relationships with peers is very promising, for several different reasons.

The promise of being part of organizations with more stable revenues (if not higher profitability) is crucially important. In addition to the short-term nature of relationships with a variety of sub-consultants, relationships with full-time staff are also cut short when the demand for basic services projects decline. When revenues are down and staff is cut, muscle is often lost with fat. And the anticipated short-term nature of the relationships has an impact on salary expectations, and planning for personal development at organizations – well before revenue problems exist.

There is widespread agreement, including in some corners at the federal level of government, that capacity exists in the construction industry for increased productivity and that the fragmented nature of the industry is hindering the much needed cooperation of all stakeholders to innovate in development, design and construction processes. With such integration, architects can provide better service to clients, users, and the community, and stand to gain financially, as well.

The degree of proficiency at integrated problem solving sets architects apart from their colleagues in the construction industry (and outside of the industry) – including financiers, agents, owners, contractors, facilities managers, etc. The ability to incorporate larger ideas into functional designs is also a rare and valuable ability possessed by architects. When, for example, a P3 bid is submitted by a consortium, the work of the architect in collaborating, and in the ultimate design, may be considered the only part of a proposal that isn't commodity-like (doesn't come down to price alone).

Opening up the ownership restrictions would undoubtedly result in larger firms, and this is a dynamic already underway in Ontario. Many of the largest firms have chosen to bring new skills in-house, and have been growing revenues in expanded and related services (such as interior design, programming, and landscape architecture). In general, larger firms enjoy higher revenue/architect ratios, provide employed architects the highest salaries, and offer exciting advancement and personal development opportunities for new recruits. They also secure the largest projects in the Ontario market - a market that is experiencing sustained growth and is seeing an increase in the participation of foreign firms.

Horizontal and vertical integration of architectural practices has not occurred in a significant way in Ontario, and in Canada as a whole. There has not been significant participation in joining forces with engineering practices, as is common elsewhere. There are few Canadian companies offering architectural services that are among the worlds larger. And though precise figures for the balance-of-trade of architectural services are not available, there are some indications that Ontario practices are under-

represented in foreign markets. The largest firms in Ontario are the most active in exporting, though the level of participation among some small and medium-sized firms is substantial. The participation of these smaller, specialized firms in exporting is an example of how many sizes and forms of practice can be successful at the practice of architecture.

The short-term future is filled with opportunities and potential pitfalls for the profession. Our economic model predicts that the demand for architects in Ontario will grow in the future, outstripping the supply. Provided that more architects or higher utilization does not meet the excess in demand, the demand will grow faster than supply by 2.7% in 2003, 5.6% in 2004, 8.8% in 2005, 12.3% in 2006 and 15.7% in 2007. This occurs as architects are aging, and a declining number of new licensees are added to the ranks each year.

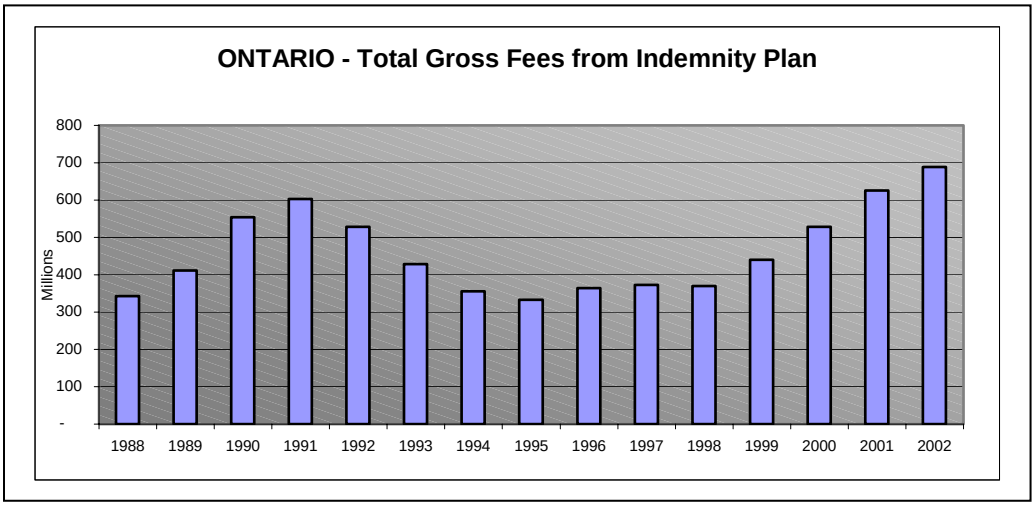
Associations must loosen regulations on the business of architecture so that practices can be designed in ways that continue to provide value for clients. 'Public goods' must be provided to help equip architects with the tools needed to succeed in the constantly changing environment that has characterized, and will continue to characterize, the practice of architecture in Canada. Associations must also continue to use the privilege of self-regulation to tackle quality issues - issues that damage the overall reputation of architects, and could jeopardize the status of architecture as a profession.

## Industry dynamics

### Revenue

The impression that the profession of architecture is being "nibbled and picked away at" is held by a number of architects. In this section, this question is tackled from a financial and economic perspective.

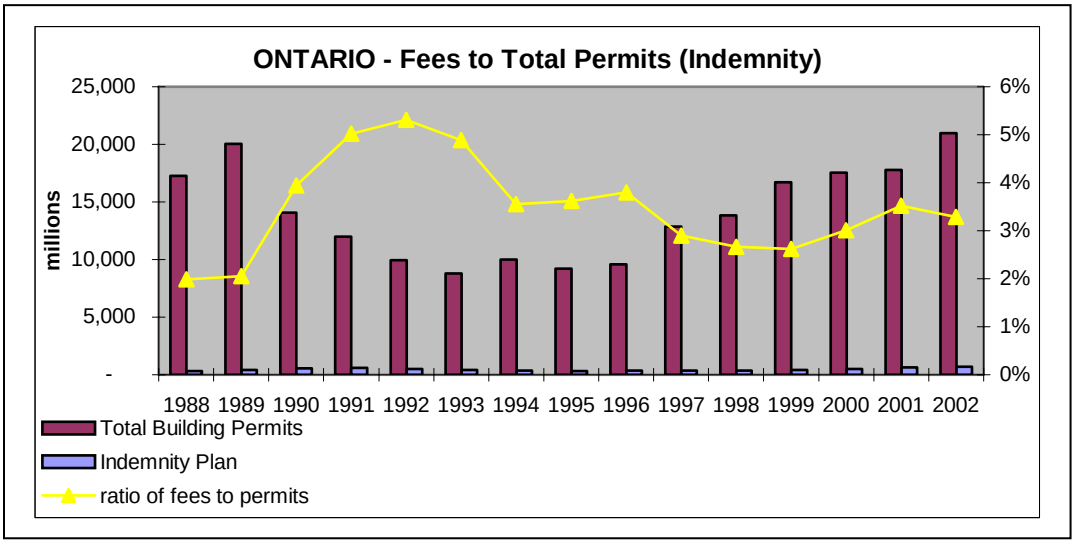
The most obvious place to look to see if the profession has lost ground is at total industry revenues. And as shown below, it is clear that revenues are not dwindling.




What is also obvious, though, is that there exists much volatility and further investigation must be undertaken to understand the links between this volatility, the number of practices, the levels of profitability, the relative performance of competition, the effect on salaries, and potential supply problems. All will be discussed individually below, and forecasts stemming from the economic model will be detailed.

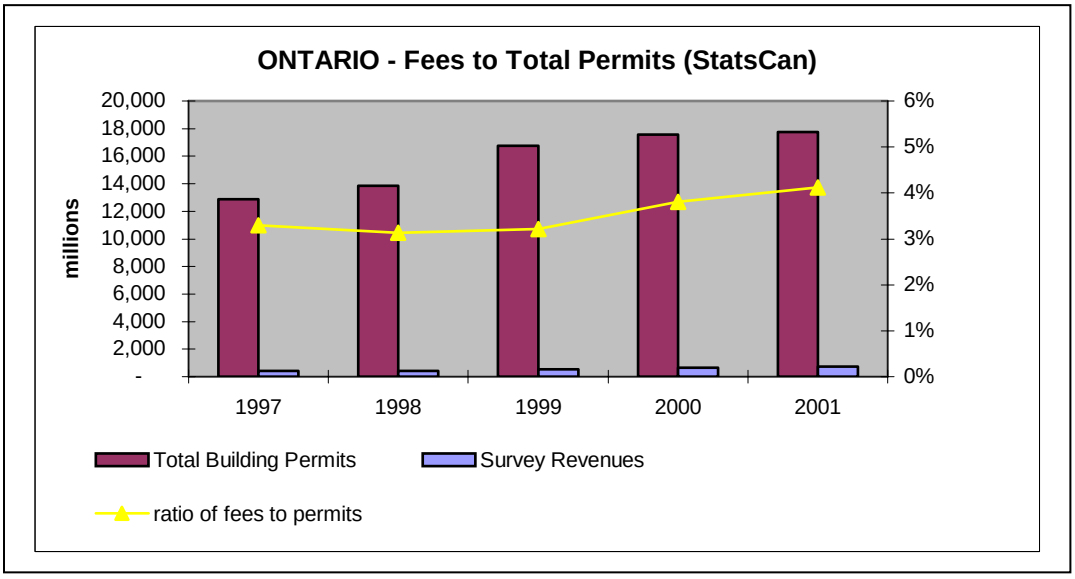
When revenues for Ontario are provided in this section and throughout the document, note that information comes from two separate sources – the Ontario Indemnity Plan (now Pro-Demnity Insurance Company) and Statistics Canada. Revenue estimates from Statistics Canada (derived from sampling and extrapolation of annual surveys) are consistently, though not unreasonably, higher than those captured by the Indemnity Plan.[2]

[2] See *Appendix 1.1* for Ontario revenues from StatCan and the Indemnity Plan, as well as revenues for MB, NB, NS, and Canada.

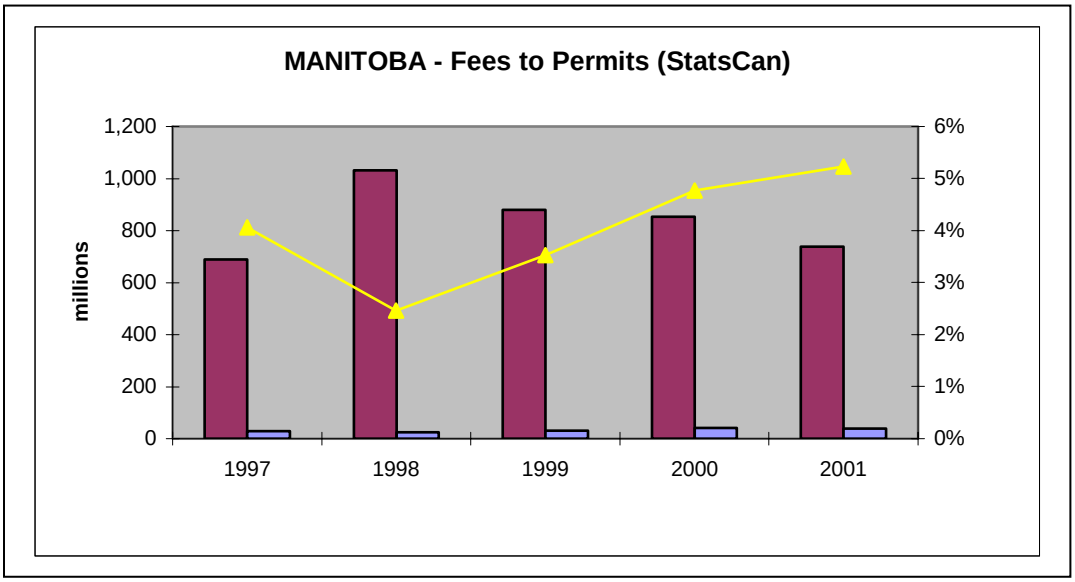



The above chart depicts the total value of building permits, the total gross fees from the Indemnity plan, and the ratio of the latter to the former. It is an attempt to normalize the architectural revenues shown in the first graph against the volatility of construction activity. It corresponds roughly to fees as a percentage of construction cost.

If architectural revenues were being siphoned away by other providers in a dramatic fashion, one would expect that the ratio would decrease over time. If no relationship exists, then one would expect much variability in the ratio over time. And as shown, neither of these propositions is true – there is a strong relationship between permits and architectural revenues, and there has been no significant decline in the last 15 years.



When using revenue figures from Statistics Canada, the same holds true, and further confirmation of the link between permits and revenues is provided when similar values of the ratio are found in Manitoba, Nova Scotia and New Brunswick. The ratios for NS and NB range between 2.5 and 4.5%.[3]




It is not clear, however, that architects in Ontario have actually gained ground – whether by achieving greater fee levels per permit on traditional services, or by engaging in more non-traditional roles unassociated with the value of a permit.[4]

As shown in the below table, though, the increase in importance of revenues for 'Other' services from 1996 to 2002 does support the assertion that architects are gaining ground through non-traditional sources, and that important changes are occurring by sector over time.

**ONTARIO - Fees by sector:**
**(**Average percentage of practices' work that came from the following categories – OAA surveys**)**

| | 1996 | 2002 | % Change |
|---|---|---|---|
| **Residential** | 28.6% | 30.7% | + 7% |
| **Commercial** | 23.5% | 23.0% | (2%) |
| **Industrial** | 7.0% | 5.3% | (24%) |
| **Institutional** | 31.9% | 30.5% | (4%) |
| **Other** | 9.0% | 10.6% | + 18% |

[3] See *Appendix 1.2, 1.3* for a graphic depiction of revenue and permit activity for Ontario, MB, NS, and NB.

[4] Although tracking the value of this ratio is instructive on an aggregate level, we believe the current association between fees and percentage of construction cost in the minds of architects (and not the majority of clients) is an impediment to arriving at appropriate fees for the specific service required for a given project.

By taking the revenues from each these sectors and comparing them to permit values, it is clear that architects enjoy the highest fees in the institutional sector, followed by commercial, industrial, and lastly, residential.

**ONTARIO - Fees to sector permits:**
**(**Sector gross fees to building permits by sector**)**

| | 1996 | 2002 | % Change |
|---|---|---|---|
| **Residential** | 1.92% | 1.82% | (5%) |
| **Commercial** | 4.08% | 4.50% | + 10% |
| **Industrial** | 2.12% | 2.23% | + 5% |
| **Institutional** | 8.63% | 7.50% | (13%) |

Though residential work is increasingly important to architects, the fees from residential work as a percentage of permit value is declining. In this analysis, fee levels for institutional work have also undergone a significant decline (down by 13%). Using these fee levels by sector and extrapolating the historical trend in permits into the future, future revenues by sector can be estimated as follows:[5]

**ONTARIO – Architectural Revenue by Sector – projected (million dollars)**

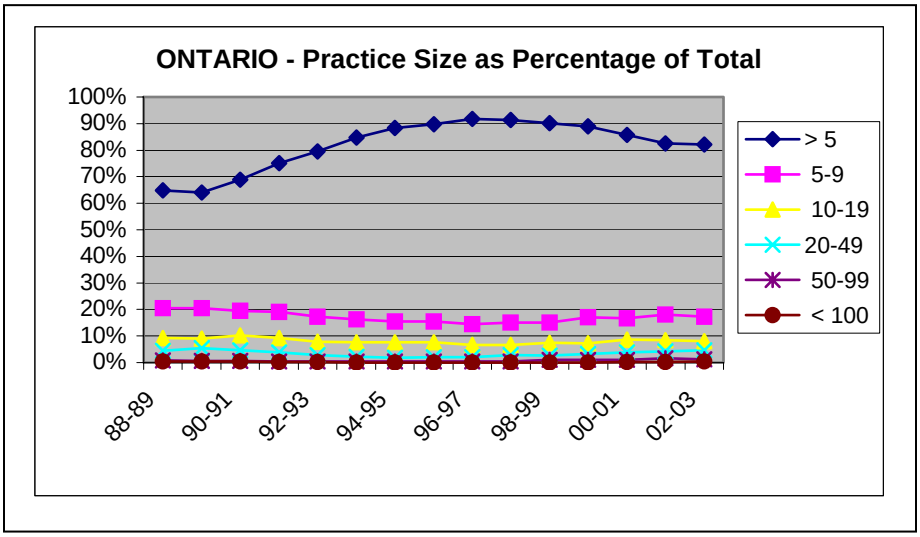
| | Residential | Commercial | Industrial | Institutional & Government | Other |
|---|---|---|---|---|---|
| *2003* | 308 | 109 | 47 | 38 | 50 |
| *2004* | 332 | 118 | 50 | 40 | 54 |
| *2005* | 358 | 127 | 53 | 42 | 58 |
| *2006* | 386 | 137 | 57 | 44 | 62 |

[5] See *Appendix 1.2* for historical permit levels, and *Appendix 1.12* for permit projections.

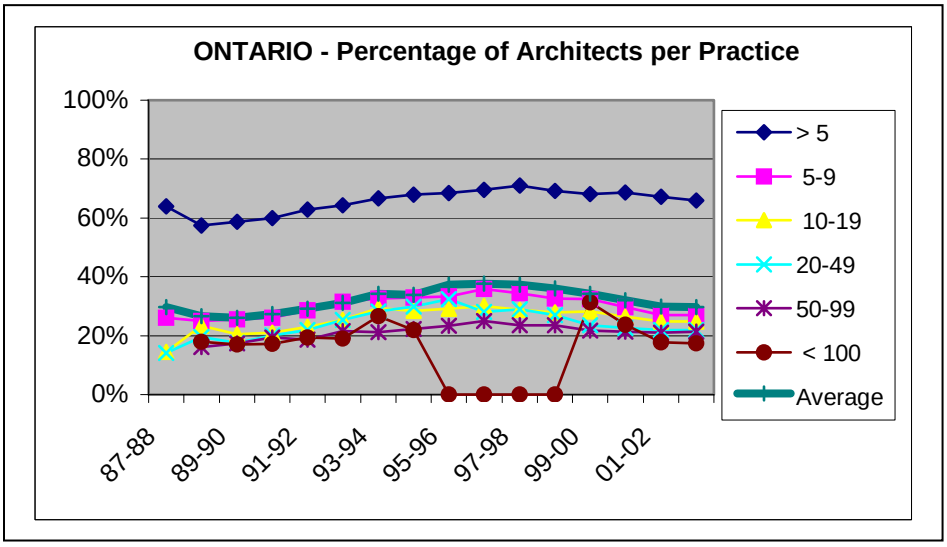
**Practices**

In Ontario, the size of firms has been growing steadily over the last five years, and has caused some to speculate on the future viability of small practices.

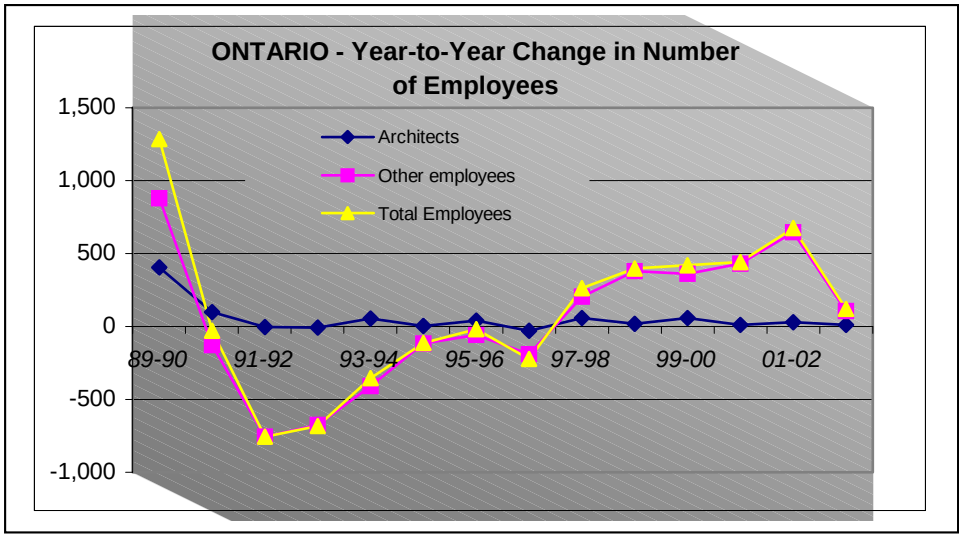
The decrease in the percentage of smaller firms (in this case, firms with fewer than five employees) does not necessarily reflect a lack of sustainable business strategies, it is better explained in terms of levels of permits, levels of gross fees, and interest rates.




In short, small firms proliferate in Ontario when times are tough. In these times, the percentage of architects per firm increases as full-time staff is let go from larger practices and many of these 'liberated' architects open sole proprietorships (as do some non-architect staff).

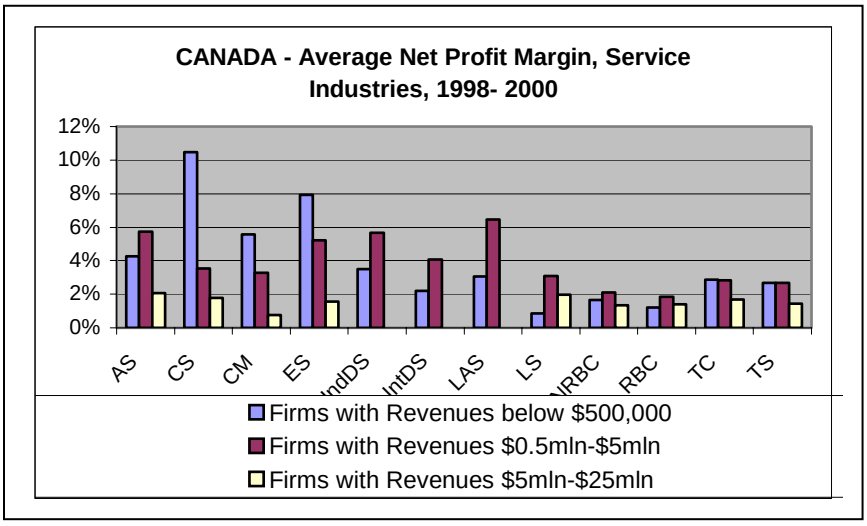



It is the non-architect employees at practices who bear the brunt of downturns in activity. In 1988, there were roughly 3,800 non-architect employees at Ontario practices (including intern engineers, technical employees, and other staff).




In 1996, their number dipped to 2,400 before growing consistently to surpass 4,500 by 2002. The number of these 'other employees' is closely tied to permit activity (and particularly to those originating in the private sector.)

Throughout these lean times, and in more buoyant times, it is medium-sized firms that exhibit the best financial performance – including the highest-levels of revenue per employee, along with low levels of architects per practice, and not surprisingly, the highest profitability. [6]




*AS* – Architectural Services,

*CS* – Computer Services,
*CM* – Construction Mgmt,
*ES* – Engineering Services,
*IndDes* – Industrial Design,
*IntDes* – Interior Design
LAS – Landscape Architecture
*LS* – Landscaping Services,
*NRBC* – Non-Res. Construction
*RBC* – Residential Construction

*TC* – Total Construction

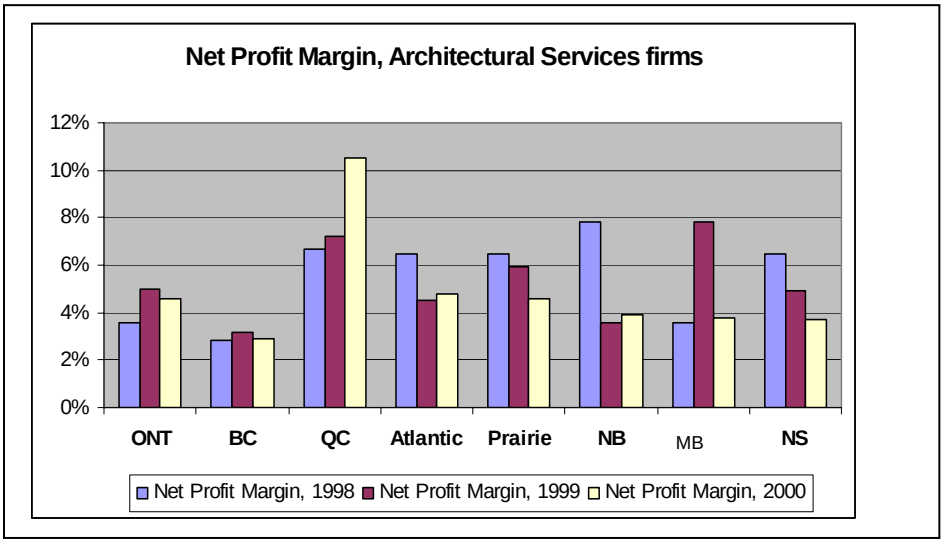
*TS* – Total Services.

The majority of the service sectors related to the construction industry exhibit a similar trend with respect to firm size and profitability levels: medium size firms achieve higher profitability levels than either small or large size companies.[7]

[6] In this case, a 'medium-sized' firm refers to those with revenue between five hundred thousand and five million, which corresponds roughly to firms with five to fifty employees.
[7] A notable exception to the above trend is construction management, where the most profitable businesses are those of the smallest size.

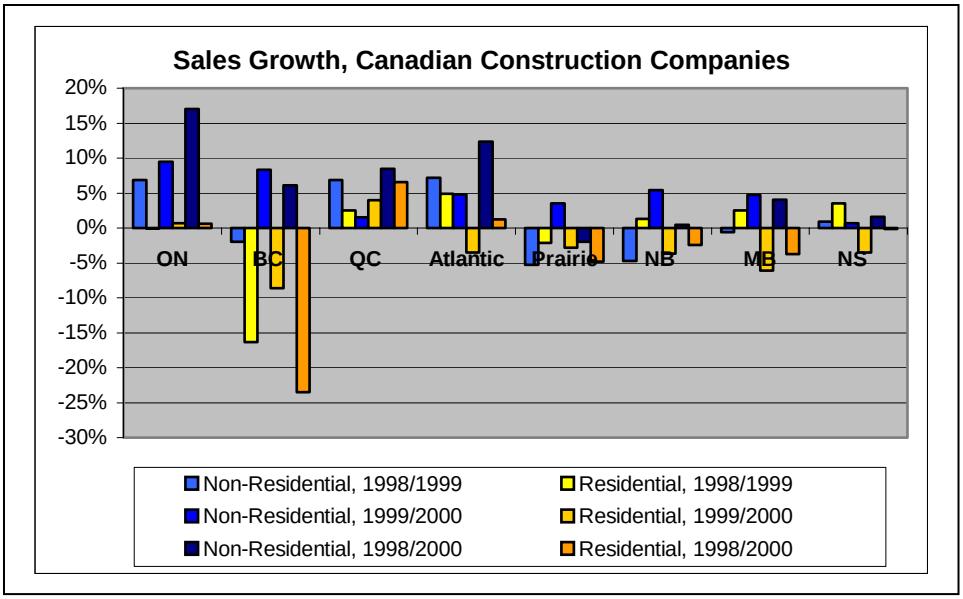
## Profitability

The performance of practices across Canada was relatively stable during 1998-2000. The average net profit margin was 4.7% in 1998, 5.1% in 1999 and 4.9% in 2000 (numbers aggregated across Canada).[8]



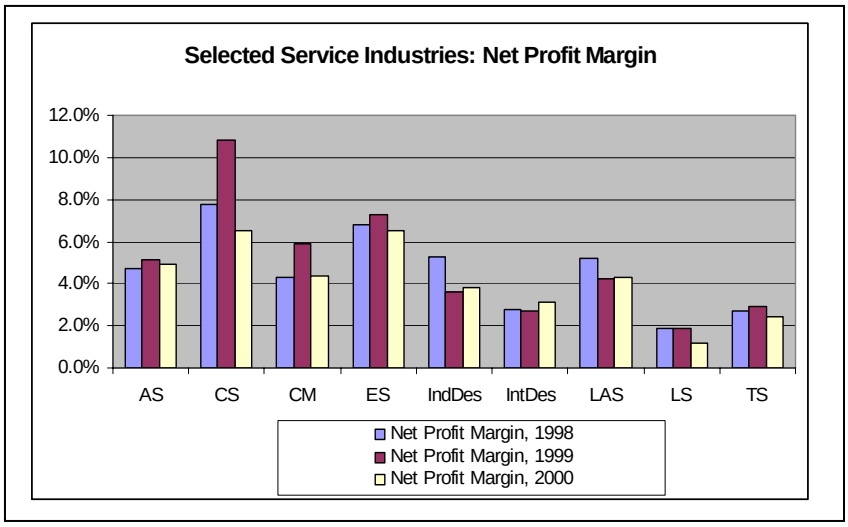

On a province-by-province basis, practices in Quebec have seen the highest average profit margin of 8.1%, followed by New Brunswick and Nova Scotia with profit margins in the range of 5.0%-5.6%. Ontario's profit margin has been at a more modest 4.4%. British Columbia bottoms the list with the average net profit margin of 3.0%.

Profitability of practices in the Atlantic and Prairie provinces exhibits a clear downward trend, which coincides with the downward trend in the sales growth of residential construction companies, slow growth in non-residential construction, and in some cases, increasing sales in construction management.

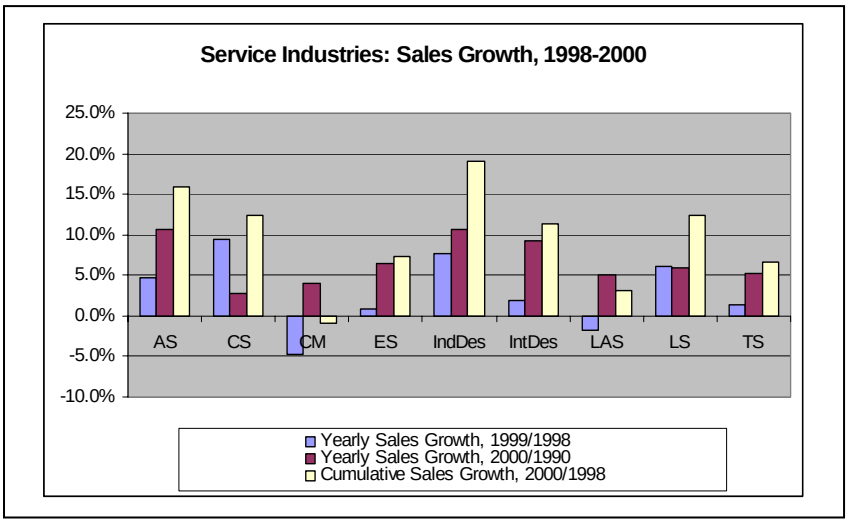



[8] Net income and profitability in this section is derived from Statistics Canada, using financial information from Revenue Canada. Information from Statistic Canada's survey, and a brief discussion, can be found in *Appendix 1.8.*

Compared to other service industries, architectural services in Canada have enjoyed healthy financial performance. In the period of 1998-2000, the average net profit margin for the industry has been steadily around 4.9%, compared to the 2.7% average net profit margin for all service industries in Canada. Only computer services and engineering services have enjoyed a higher profitability than architectural practices.[9]




Architectural practices enjoy the highest profitability among all service segments related to the design and building / construction industries. In 2000, at 4.9% net profit margin, architectural practices were more profitable than construction management (4.4%), landscape architecture (4.3%), industrial design (3.8%) and interior design (3.1%).



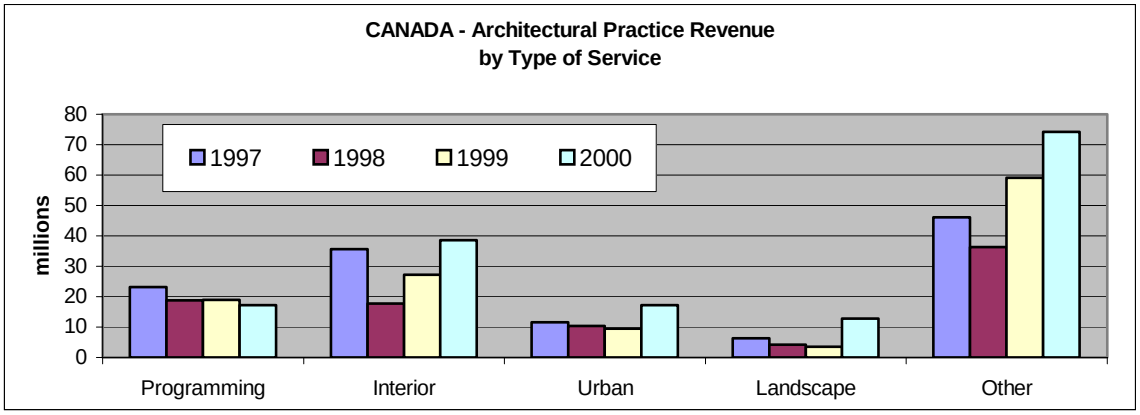

In comparison with related service industries, architectural services enjoyed the second highest sales growth in the period 1998-2000 - for firms in Ontario, the revenue per architect grew steadily since 1997 from roughly $150,000 to more than $250,000.[10] And across Canada, the

[9] The legend for the two graphs is as follows: *AS* – Architectural Services, *CS* – Computer Services, *CM* – Construction Mgmt, *ES* – Engineering Services, *IndDes* – Industrial Design, *IntDes* – Interior Design, LAS – Landscape Architecture, *LS* – Landscaping Services, *TS* – Total Services.

[10] See *Appendix 1.4* for Revenue per Employee in Ontario and Manitoba, and *Appendix 1.11* for a more detailed balance sheet and performance comparison to other industries.

average sales grew by 15.9%, in comparison with the aggregated growth of all service industries of 6.7%. Only the industrial design services sector enjoyed higher sales growth of 19.1%.

The majority of sales growth at practices has come from traditional, 'full service' projects, but as discussed above, an increasing amount is beginning to come from 'other' sources. In 1998 across Canada, revenue from full service engagements accounted for more than 91% of revenue at practices. By 2000, this number slid to 89%, led by a near doubling of revenues reported from 'other' sources.



## Wages

In 2001, the average compensation for an architect in Ontario amounted to $81,820 - a considerable increase (26%) from the compensation reported for 1995.[11] Not only does this increase coincide with growing revenues, it is actually growing at a faster rate. In 2001, revenue grew at 9% while expenses on wages, salaries, and benefits increased by 17%. This trend has continued in Ontario since 1997.

**ONTARIO – Practice Performance**

| | Change in Revenue | Change in Total Expenses | Change in Compensation Expense |
|---|---|---|---|
| 1997-1998 | + 2 % | - | + **10** % |
| 1998-1999 | + 24 % | + 10 % | + **35** % |
| 1999-2000 | + **24** % | + 16 % | + 17 % |
| 2000-2001 | + 9 % | + 8 % | + **17** % |

*Statistics Canada Survey*

At some organizations, part of the increase in salaries may be attributable to bonuses paid for firm performance. However, this form of compensation is not widespread – in the 2002 survey, only 27% of staff at architectural practices received a bonus. The instability of employment in the profession is a contributing factor, leading non-architect employees to ask for higher salaries when demand is increasing.

There is likely pent-up demand for higher salaries among architects during buoyant times, as well. According to the 2002 OAA survey, respondents who work outside of architecture are more likely to say that they are adequately compensated for their work and that their career is advancing. And as shown below, the prospects for high salaries upon graduation look considerably poorer for architecture grads than they do for other aspiring Canadian professionals.[12]

**Average Salaries for Several Industries, Information obtained from Job Futures at www.hrdc.gc.ca**

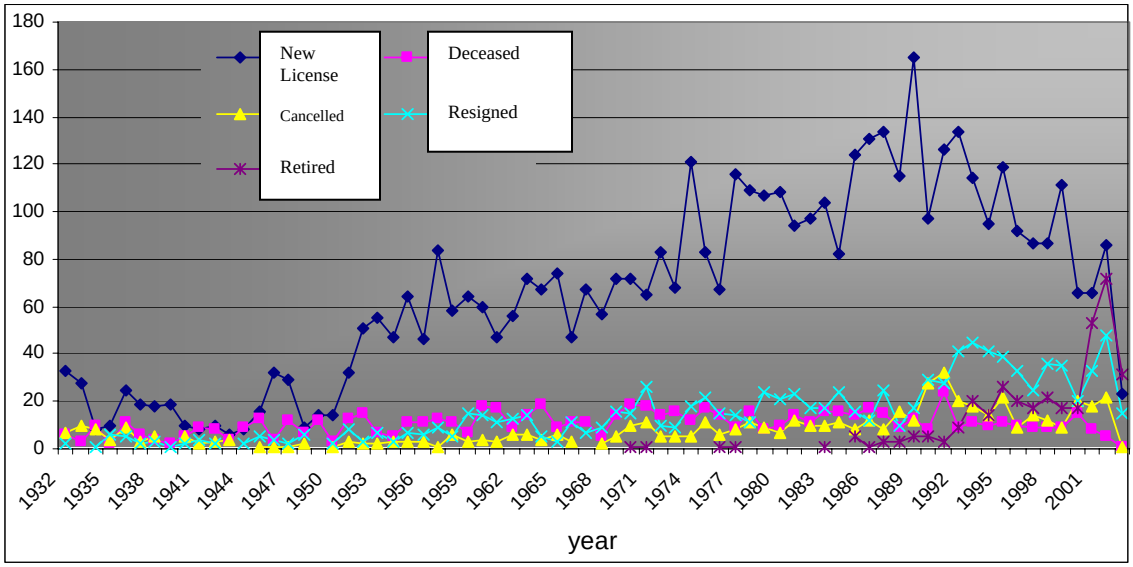
| | Highest 20% | | Average | | Lowest 20% | |
|---|---|---|---|---|---|---|
| | 5 years after graduation | 2 years after graduation | 5 years after graduation | 2 years after graduation | 5 years after graduation | 2 years after graduation |
| Architecture | 52500 | 61400 | 35200 | 34400 | 19900 | 16800 |
| Civil Engineering | 59300 | 54900 | 44400 | 37900 | 31300 | 24400 |
| Dentistry | 186800 | 131000 | 106700 | 70900 | 58800 | 24500 |
| Engineering - other | 62000 | 55600 | 44000 | 39200 | 28300 | 25100 |
| Law | 93300 | 65700 | 53600 | 37400 | 24700 | 12600 |
| Medicine (MD) | 171000 | 48100 | 85200 | 37600 | 37600 | 26400 |

[11] OAA Survey of Members, 1996, 2002.

[12] The difference between architecture grads' salary two years after grad and five, and the surprising result for the highest 20% was is not an input error on behalf of HRDC or MBCG. HRDC does not release information on its sources, but suggested it could be the result of a particularly good year / lucky crop of grads in 2000 (two years after grad).

**Future Imbalances of Supply and Demand**

There has been a recent decrease in the number of newly licensed architects in Ontario. As shown below, the number of new licenses had been steadily increasing until the early 1990's before starting to fall.




From an economic perspective, the five variables above can be used to estimate the future supply of architects. By looking at the historical trends in new licenses, cancelled, resigned, retired and deceased members, an estimate of the future supply can be estimated, as shown below.

| YEAR | PROJECTED SUPPLY | Total Supply one year before | - Death rate | - Retirement rate | - Cancellation Rate | - Resignation rate | + New Supply |
|---|---|---|---|---|---|---|---|
| **2003** | **2684** | 2684 | 0.0016 | 0.011 | 0.0058 | 0.0112 | 0.0296 |
| **2004** | **2679** | 2684 | 0.0013 | 0.012 | 0.0058 | 0.0112 | 0.0284 |
| **2005** | **2672** | 2679 | 0.001 | 0.012 | 0.0058 | 0.0112 | 0.0273 |
| **2006** | **2659** | 2672 | 0.0007 | 0.013 | 0.0058 | 0.0112 | 0.0261 |
| **2006** | **2645** | 2659 | 0.0004 | 0.013 | 0.0058 | 0.0112 | 0.0249 |

An estimate for future demand for architects can also be developed by analyzing the relationships between sector permits, revenues, interest rates, and licensed members. The matrix on the following page outlines the demand for future architects when permits, gross fees, interest rates stay at the same levels, or increase / decrease at their historical rates of change.[13]

[13] See *Appendix 1.14* for projected levels of total permits, interest rates, and gross fees. The relationship between each of these individual variables has been tested for its unique statistical relationship to the

## Demand Scenarios - Ontario

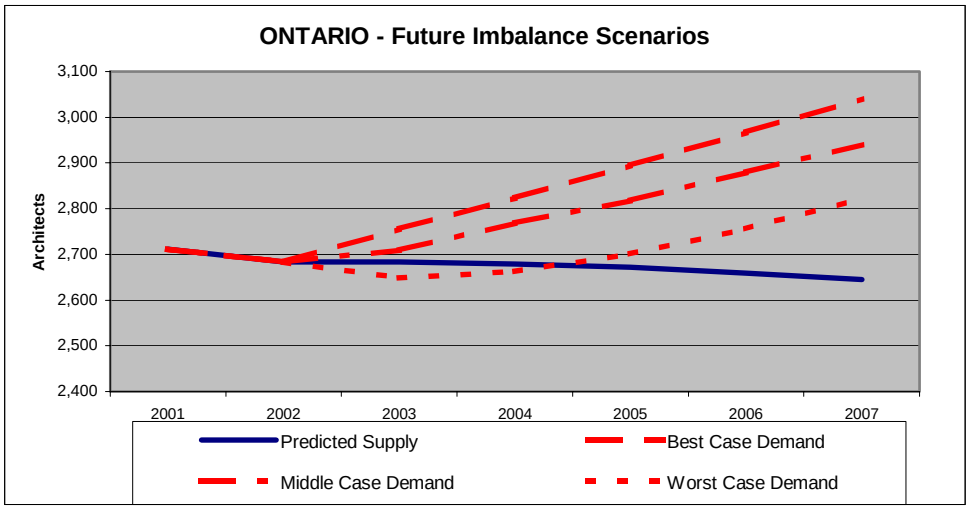
| | INCREASING BUILDING PERMITS | | | | SAME BUILDING PERMITS | | | | DECREASING BUILDING PERMITS | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 Year | No. of Architects | % Change | | 2 Year | No. of Architects | % Change | | 3 Year | No. of Architects | % Change | |
| | 2002 | 2684 | | | 2002 | 2684 | | | 2002 | 2684 | | |
| INCREASING GROSS FEES | 2003 | 2756 | 2.69% | | 2003 | 2728 | 1.66% | | 2003 | 2701 | 0.63% | INTEREST RATES INCREASING |
| | 2004 | 2823 | 2.42% | | 2004 | 2785 | 2.09% | | 2004 | 2748 | 1.76% | |
| | 2005 | 2895 | 2.55% | | 2005 | 2838 | 1.90% | | 2005 | 2783 | 1.24% | |
| | 2006 | 2967 | 2.47% | | 2006 | 2896 | 2.03% | | 2006 | 2827 | 1.60% | |
| | 2007 | 3041 | 2.51% | | 2007 | 2953 | 1.97% | | 2007 | 2868 | 1.44% | |
| | 4 Year | No. of Architects | % Change | | 5 Year | No. of Architects | % Change | | 6 Year | No. of Architects | % Change | |
| | 2002 | 2684 | | | 2002 | 2684 | | | 2002 | 2684 | | |
| SAME GROSS FEES | 2003 | 2736 | 1.95% | | 2003 | 2709 | 0.92% | | 2003 | 2681 | -0.09% | |
| | 2004 | 2806 | 2.55% | | 2004 | 2769 | 2.21% | | 2004 | 2732 | 1.88% | |
| | 2005 | 2875 | 2.45% | | 2005 | 2818 | 1.79% | | 2005 | 2763 | 1.14% | |
| | 2006 | 2951 | 2.63% | | 2006 | 2880 | 2.20% | | 2006 | 2812 | 1.76% | |
| | 2007 | 3027 | 2.60% | | 2007 | 2940 | 2.06% | | 2007 | 2855 | 1.53% | |
| | 7 Year | No. of Architects | % Change | | 8 Year | No. of Architects | % Change | | 9 Year | No. of Architects | % Change | |
| | 2002 | 2684 | | | 2002 | 2684 | | | 2002 | 2684 | | |
| DECREASING GROSS FEES | 2003 | 2717 | 1.22% | | 2003 | 2689 | 0.20% | | 2003 | 2662 | -0.81% | |
| | 2004 | 2789 | 2.67% | | 2004 | 2752 | 2.34% | | 2004 | 2716 | 2.01% | |
| | 2005 | 2855 | 2.34% | | 2005 | 2799 | 1.69% | | 2005 | 2744 | 1.03% | |
| | 2006 | 2935 | 2.80% | | 2006 | 2865 | 2.36% | | 2006 | 2797 | 1.93% | |
| | 2007 | 3014 | 2.70% | | 2007 | 2927 | 2.16% | | 2007 | 2842 | 1.62% | |

| | INCREASING BUILDING PERMITS | | | | SAME BUILDING PERMITS | | | | DECREASING BUILDING PERMITS | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 10 Year | No. of Architects | % Change | | 11 Year | No. of Architects | % Change | | 12 Year | No. of Architects | % Change | |
| | 2002 | 2684 | | | 2002 | 2684 | | | 2002 | 2684 | | |
| INCREASING GROSS FEES | 2003 | 2721 | 1.39% | | 2003 | 2694 | 0.37% | | 2003 | 2667 | -0.64% | |
| | 2004 | 2750 | 1.06% | | 2004 | 2714 | 0.73% | | 2004 | 2678 | 0.40% | |
| | 2005 | 2829 | 2.88% | | 2005 | 2774 | 2.22% | | 2005 | 2720 | 1.57% | |
| | 2006 | 2908 | 2.78% | | 2006 | 2839 | 2.34% | | 2006 | 2771 | 1.90% | |
| | 2007 | 3006 | 3.36% | | 2007 | 2919 | 2.81% | | 2007 | 2834 | 2.27% | |
| | 13 Year | No. of Architects | % Change | | 14 Year | No. of Architects | % Change | | 15 Year | No. of Architects | % Change | |
| | 2002 | 2684 | | | 2002 | 2684 | | | 2002 | 2684 | | |
| SAME GROSS FEES | 2003 | 2702 | 0.66% | | 2003 | 2675 | -0.35% | | 2003 | 2648 | -1.36% | INTEREST RATES SAME |
| | 2004 | 2734 | 1.18% | | 2004 | 2697 | 0.86% | | 2004 | 2662 | 0.53% | |
| | 2005 | 2810 | 2.78% | | 2005 | 2755 | 2.12% | | 2005 | 2701 | 1.46% | |
| | 2006 | 2892 | 2.94% | | 2006 | 2824 | 2.51% | | 2006 | 2756 | 2.07% | |
| | 2007 | 2992 | 3.45% | | 2007 | 2906 | 2.91% | | 2007 | 2822 | 2.37% | |
| | 16 Year | No. of Architects | % Change | | 17 Year | No. of Architects | % Change | | 18 Year | No. of Architects | % Change | |
| | 2002 | 2684 | | | 2002 | 2684 | | | 2002 | 2684 | | |
| DECREASING GROSS FEES | 2003 | 2682 | -0.06% | | 2003 | 2655 | -1.07% | | 2003 | 2629 | -2.07% | |
| | 2004 | 2717 | 1.31% | | 2004 | 2681 | 0.98% | | 2004 | 2646 | 0.65% | |
| | 2005 | 2790 | 2.67% | | 2005 | 2735 | 2.01% | | 2005 | 2682 | 1.36% | |
| | 2006 | 2877 | 3.11% | | 2006 | 2808 | 2.67% | | 2006 | 2742 | 2.24% | |
| | 2007 | 2979 | 3.54% | | 2007 | 2893 | 3.00% | | 2007 | 2809 | 2.46% | |

| | INCREASING BUILDING PERMITS | | | | SAME BUILDING PERMITS | | | | DECREASING BUILDING PERMITS | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 19 Year | No. of Architects | % Change | | 20 Year | No. of Architects | % Change | | 21 Year | No. of Architects | % Change | |
| | 2002 | 2684 | | | 2002 | 2684 | | | 2002 | 2684 | | |
| INCREASING GROSS FEES | 2003 | 2739 | 2.04% | | 2003 | 2711 | 1.01% | | 2003 | 2684 | -0.01% | |
| | 2004 | 2786 | 1.74% | | 2004 | 2749 | 1.41% | | 2004 | 2713 | 1.08% | |
| | 2005 | 2862 | 2.72% | | 2005 | 2806 | 2.06% | | 2005 | 2751 | 1.41% | |
| | 2006 | 2937 | 2.62% | | 2006 | 2867 | 2.19% | | 2006 | 2799 | 1.75% | |
| | 2007 | 3023 | 2.93% | | 2007 | 2936 | 2.39% | | 2007 | 2851 | 1.85% | |
| | 22 Year | No. of Architects | % Change | | 23 Year | No. of Architects | % Change | | 24 Year | No. of Architects | % Change | |
| | 2002 | 2684 | | | 2002 | 2684 | | | 2002 | 2684 | | |
| SAME GROSS FEES | 2003 | 2719 | 1.31% | | 2003 | 2692 | 0.28% | | 2003 | 2664 | -0.73% | INTEREST RATES DECREASING |
| | 2004 | 2770 | 1.86% | | 2004 | 2733 | 1.53% | | 2004 | 2697 | 1.20% | |
| | 2005 | 2842 | 2.61% | | 2005 | 2786 | 1.95% | | 2005 | 2732 | 1.30% | |
| | 2006 | 2921 | 2.79% | | 2006 | 2852 | 2.35% | | 2006 | 2784 | 1.92% | |
| | 2007 | 3010 | 3.03% | | 2007 | 2923 | 2.48% | | 2007 | 2838 | 1.95% | |
| | 25 Year | No. of Architects | % Change | | 26 Year | No. of Architects | % Change | | 27 Year | No. of Architects | % Change | |
| | 2002 | 2684 | | | 2002 | 2684 | | | 2002 | 2684 | | |
| DECREASING GROSS FEES | 2003 | 2700 | 0.58% | | 2003 | 2672 | -0.44% | | 2003 | 2645 | -1.44% | |
| | 2004 | 2753 | 1.99% | | 2004 | 2717 | 1.66% | | 2004 | 2680 | 1.33% | |
| | 2005 | 2822 | 2.51% | | 2005 | 2767 | 1.85% | | 2005 | 2713 | 1.20% | |
| | 2006 | 2906 | 2.96% | | 2006 | 2837 | 2.52% | | 2006 | 2769 | 2.08% | |
| | 2007 | 2996 | 3.12% | | 2007 | 2910 | 2.58% | | 2007 | 2825 | 2.04% | |

number of members. In other words, the change in permits for each sector (residential, commercial, industrial, institutional) do not have an equally strong relationship to the number of architects, and the absolute value of permits for any one sector do not unduly influence the projection (i.e. the value of residential permits does not disproportionately affect the projection for members simply because they constitute the largest chunk of total permits).

When supply is compared to demand, a shortfall is projected. In fact, in each of the scenarios given above, a shortfall of architects is predicted by 2007. In the best case scenario – where permits, revenues, interest rates will increase at their historical rates - by 2007, the shortfall will approach 400 licensed architects. In the graph below, a middle case, and worst-case demand scenario are plotted with the best-case scenario.[14]




The demand forecast utilizes historical levels of architect per unit of demand (with the year 2002 taken to be at equilibrium). So the shortfall may be met by a variety of methods. New licensed architects can be added, existing architects can work more, or new operational structures can be set up at practices that allow architects to spread themselves further (i.e. greater use of interns, technical staff, or technology). The shortage will surely have an impact on salary expectations from non-architect staff, and may consequently impinge on practice profitability if salaries continue to grow faster than revenues. There also exists the possibility that less busy and more aggressive foreign firms will increasingly undertake projects in Ontario.

[14] The medium case demand scenario provided here occurs when there is no growth in permits or gross fees and interest rates increase, and the worst occurs when permits and fees are decreasing and interest rates stay the same.

## Issues

### Fees

In Ontario, evidence of deep problems with fee levels is not obvious to the outsider, and the frequently discussed solution of imposing fee schedules seems that it would more likely serve to inhibit than help practices in today's marketplace.

For projects where practices compete with one another (i.e., RFP's, competitions), clients of all stripes have suggested that price isn't their primary criterion. One client, for example, indicated that he asks architects to submit their proposals and their fees in separate envelopes, so that the fee will not directly affect the selection process. Instead of concentrating on fees, clients discussed the following factors as important criteria when shopping for architectural services: (or, in other words, they suggested that for practices that made them feel comfortable about the following, higher project fees could be justified):

1. **The strength of the design team:** the range and depth of experience the architect(s) bring to the project. Some clients value the experiences and knowledge of key members of the firm and their skill sets by project type. For example, the depth of experience in certain areas pertaining to health care projects, such as experience in intensive care units and operating rooms, is carefully evaluated.

2. **Firm Size**: many clients feel that firm size is a factor, but not necessarily for straightforward reasons. It is the anticipated quality of service and the access to resources that underlies many of the biases associated with firm size. Though there is a preference by some clients to select small to medium-sized firms, it is often because they believe that these practices are more committed to any given project. Another client indicated that he only selects medium to large-sized practices with "horsepower" to achieve the "critical mass necessary" to undertake his projects. Another client mentioned that he prefers large firms because he gets a broader range of experience and the firm itself outsources any required expertise not offered in house.

   The main concern about smaller practices is their ability to get the job done. For larger firms, concerns usually center on communication. One frustrated client recounted his experiences with a larger practice: after seeing the principal give a good presentation he had to deal with an endless number of "faces" as the project progressed, and could not talk with any one person throughout the project. Similarly, another public client noted that bigger firms are less responsive, especially if they are very busy or they become international. "We should feel that we are their only client or their number one client." He would often go as afar as verifying how many other projects the firm is carrying out in order to estimate

how busy the firm is.

3. **Consultants:** the team of engineers and other consultants that the architects put together is critical to all clients. One client indicated that his organization "reserves the right to veto anybody on the architect's team." Another client indicated the importance of the presence of a cost consultant within the team.

4. **Previous relationship and experience if any:** clients review their history with the firm and evaluate how the firm managed extras and credits in other projects and check the quality of the construction documents previously prepared by the firm. In addition, much importance is placed on how well the architect acted in the interest of the client in the past. A client complained that there are always issues, and it is noted when they feel that "architects haven't negotiated well for a specific change order or haven't gone far enough to reduce it or eliminate it". Finally, clients review the results of Post Project Evaluations, assess how the process was handled by the architects and verify that the evaluations were thorough and complete.

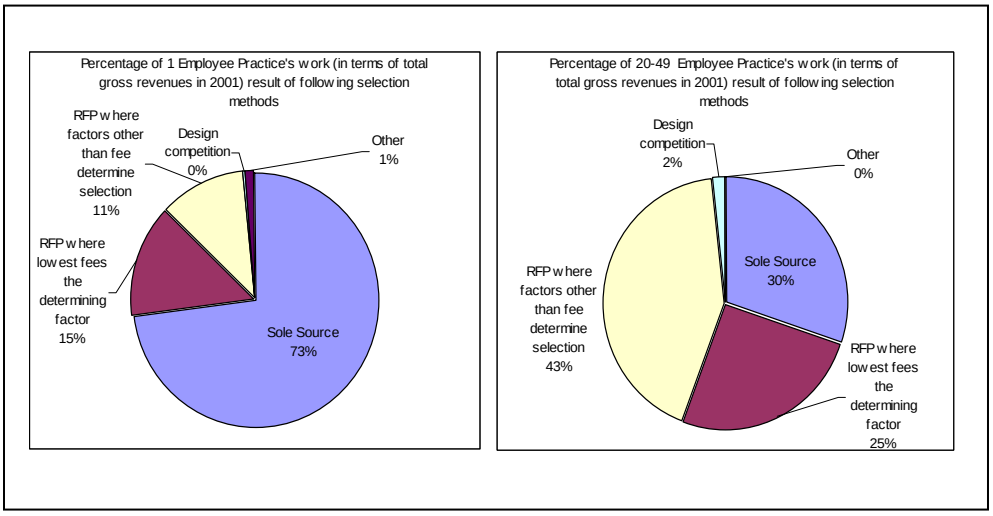
5. **References:** from previous clients, contractors or users of the buildings. The references should prove achievements on other projects that could be brought to the new project. Clients often ask for references that prove cost control and work done according to schedule.

6. **Design approach and aesthetics:** clients value the architect's ability to integrate their spatial needs in a design that is functional. Clients sometimes request certain design features that echo certain "intangible" needs within the client's sector. For example, for a client in the educational sector it is important for the school design "to have an aesthetic or architectural feature that students can remember 20 or 30 years after leaving school".

7. **Ability to work with the clients and understand their needs:** Clients value architects' knowledge and understanding of their business or sector requirements. Although in the public sector, clients often have to select an architect through an open selection process and do not necessarily end up with firms that they have worked with before.

8. **Sustainable design and the use of technology:** minimizing operating costs and project life cycle costs are important to any client. Interviewed clients suggested an increased awareness of the importance of sustainable and energy efficient design through the use of the appropriate mechanical and electrical systems as well as proper window detailing. They also believed that sustainable designs cost more than conventional ones and want to see enough savings in the building life cycle costs to offset the extra design costs. One client mentioned that he expects the architect "to bring these issues to the table"

Clients looking for architectural service do behave like other types of clients when choosing among competitors – where the highest quality *and* best service is sought *at the lowest price*. But because the majority of work comes by way of sole source (66% on average in Ontario, according to the 2002 survey), it is not clear how a client's desire for low fees could exert a severe downward pressure – as practices do not often compete head-to-head on price. It would seem that a fee schedule in cases of sole source selection would only be an impediment to negotiating a fair and reasonable fee that meets the client's unique needs and the practice's unique cost structure.




The graph at left depicts the percentage of contracts awarded to firms by selection method. For the smallest firms, the vast majority of their work came from 'sole source' selection, while for larger firms (in this case firms with 20-49 employees) 'sole source' was used far less frequently. For these larger firms, members also felt that the majority of their winning RFP's were not based on price.

A majority of clients interviewed indicated that most of the negotiations take place as the project is being executed and not during the architect's selection process. For example, when fee cutting is involved, extra charges such as travel costs and long distance charges become an issue. "Just like printing expenses, where the number of construction documents provided is pre-specified, these things should be already accounted for in the fee," one client suggested. In addition, a frustrated client mentioned that he doesn't like it when architects change the design and recalculate their fees when the changes are not the result of the owner's requirements. On the other hand, a different client had another view, which was that "most of the negotiations happen when the scope of work changes and architects ask for more fees. Understandably, almost 50% ask for additional fees."

The frustration that clients feel when fees are changed, probably makes client-centric architects hesitant to request more fees. The speculation on behalf of the seasoned client that 50% 'understandably' ask for additional fees, if true, is in fact very generous on the part of architects. Similar generosity for completing additional work at no charge is not often afforded by other professionals, such as lawyers or dentists.

Respondents in the 2002 survey indicated that profits on completed projects were within the range at the outset three-quarters of the time. Though this seems like a solid slugging percentage, architects should do one of two things. Incorporate higher profit margins at the outset, or diligently pursue more fees for change orders.

The second approach does not have to be confrontational, but can be communicated openly with the client at the outset. And the architect should consider that the chosen approach of project delivery – design, bid, build, rather than design-build – was chosen by the client because of the control that they retain to make changes throughout the development of the project. Control can cost.

"Mr Client, as you can see by my itemized costs (Work Breakdown Structure), my operation is lean, and projects like this are the only way that I keep my staff and office running, and keep current with the latest technology to infuse into my projects. If there are changes that may be made to the project and my scope of services, I will let you know as soon as I know, and will provide you with all the details on the potential costs/benefits, and will await your decision."

Not all clients have a good sense of the architect's business, and when they see fee schedules, especially in the hands of architects, they may misunderstand what the fee entails. One client stressed that architects should give more detailed fee structures. "They should be 'transparent' and give full disclosure of where the client's money goes." Indeed. We were informed that some clients did not even know that architects pay the consultants' fees.

'Value-based' fees entail clearly outlining fees in a way that clients understand. It is similar to the fixed-fee approach used frequently by architects in Ontario – a superior approach to setting fees using hourly rates or percentages of construction cost. Clients are most interested in an architect's work aligning with their own goals for the project, and are not concerned about the amount of time an architect actually spent, or what the architect's fees amounted to as a percentage of the construction cost. With value-based fees, compensation can be based (in part or in whole) on the quality of services provided by the architect. For the majority of clients, there is room for creativity in arriving at value-based fee agreements. The quality of service may be measured and rewarded in innumerable ways (at the most basic, for delivery on time and/or budget). Creativity can also be used to assess the quality of design work (such the market's reaction to the designs - commission paid each time a property changes hands, as a fixed bonus for meeting occupant satisfaction goals[15]). Where adopted in other professional service industries, practices using value-based fees have enjoyed greater profits, improved marketability and many more satisfied clients than their peers.

[15] These are two suggestions made by Barry D. Yatt, AIA, CSI in his *Architectural Practice Research Project* out of the School of Architecture and Planning of The Catholic University of America.

**Fees in Manitoba**

Special mention should be made of the case of Manitoba. The issue of fee competition came up frequently in conversation with architects and clients in Winnipeg, and in our data gathering, we noted demographic differences between professions in Manitoba and Ontario.[16]

A number of Manitoba clients pointed out "in Winnipeg everybody is looking for the deal. Fees have gone down and architects are largely responsible for that". One client from Manitoba described and summarized the situation of Winnipeg architects. "The biggest issue in our city is that architects are overly competitive. They are competing so fiercely against each other. They try to unrealistically lower their cost and their fee in order to win the job". As a result architects in Winnipeg end up spending less time on a job than they should, "the quality of the project suffers and is inadequate". He went further to compare the advantage a small firm has over large a large firm. "A lot of local architects are small, so they have low overhead costs naturally. As a result they are able to do the job cheaply but with good quality. At the same time other firms have too much work and they don't have the time and resources they need to spend on the project". In his opinion, architects should charge realistic fees, target fewer projects in order to end up with a better product. Another client involved in residential renovation projects pointed out that in general, engineers' fee per hour is higher than the architects'. But she ends up hiring more engineers and is willing to pay a higher price for their expertise. She doesn't find enough architects in Manitoba with expertise in certain aspects related to her projects such as building envelopes.

[16] There is significantly lower revenue per architect in Manitoba than in Ontario. There continues to be a higher ratio of architects per capita in Manitoba, even after a precipitous fall in licensed members in the early nineties. An acute sense of scarcity likely remains etched in the minds of remaining practitioners.

**Construction Industry Performance**

The Canadian construction sector, at its best, is excellent. Its capability to deliver the most difficult projects, under the harshest of conditions, is as good as that of any nation in the world. And like the construction industries of other countries, it is also a critical component of the Canadian economy, accounting for 11.2% of GDP (total revenues $107.3 billion).

The industry is not without its problems. There is a skilled labour shortage, and the productivity growth in the construction sector has lagged behind that of the business sector by over 50% since 1960.[17] Its international competitiveness has been questioned; as Canada's largest companies are dwarfed by more vertically and horizontally integrated companies.[18]

The industry also appears to suffer from neglect from the federal government. Several other nations are developing, or have already developed, national strategies and have implemented comprehensive national action plans to deal with them.

The National Research Council's (NRC's) Institute for Research in Construction (IRC), has become active in promoting the cause, including the organization of several forums, including the federal government's public consultation process regarding "Canada's Innovation Strategy." With an impressive panel of stakeholders, the IRC has drawn attention to the plight of the industry, and in an attempt to catch up with countries like Australia, the UK and the USA, proposed a similar set of 'high-level' national goals for the economic performance, societal benefits and the environmental impacts that should be established for the complete construction industry.

| Target | 5-year change |
|---|---|
| Capital Cost | -25% |
| Project Delivery Time | -25% |
| Predictability | +50% |
| Defects | -50% |
| Accidents | -50% |
| Productivity | +25% |
| Revenue & Profits | +25% |
| R&I industry investment | +100% |
| Projects with 'sustainability' in procurement criteria | 25% of all projects |
| Projects procured based on life-cycle cost | 25% of all projects |

To date, however, there are no national innovation programs related to construction in Canada, and the topic could be considered under - appreciated by the federal government.

[17] "Innovation in Construction Priorities for Action, A Response to the Federal Government Announcement" prepared by The National Steering Committee for Innovation in Construction, 2002.
[18] Canada's largest construction firm has 3,000 employees while intercontinental companies have nearly 100,000.

**Project Delivery**

*Design build*

Architects in general expressed limited involvement in design-build projects. Some predicted that they would eventually have to deal with this form of project delivery and adequately prepare for it. “To deal with design build and be prepared for it, the architect needs to control the budget. She or he should prepare a real budget and stick to it.” In addition, architects stressed the importance of choosing the right partner. One firm indicated taking part in design-build projects, “we do design-build under the management of the contractor. We try to work with good firms. Generally, contractors want to squeeze you on your fee and do not realize the value of design. They want good designs but they don’t want to pay for it. It is all based on how good the contractor is”.

The design-build approach promises project execution on time and within budget. It could also provide cost savings in the architect’s fees. However, most public clients have been expressing reservations with this system. The main issues that concerned clients were poor quality and loss of control.

One government client mentioned that in the private sector, due to financing issues, there is an urgent need for project completion in order for the project to generate cash flows, but that there were “very few circumstances in public setting in which getting a building done so fast is urgent. It is harder to get a good quality design building with design-build. In the public sector avoid it unless you have to.”

A number of clients reported experimenting with design-build on one or two projects and “concluded that the process does not offer any advantages over the traditional design-bid-build, control is taken away from us and it is not any more cost effective or efficient”. The design-builder, which is almost always the contractor, has the architect working for him and tells the architect what to do. They try to do the project at a fixed price. As a result, the owner loses control over what goes on in the building, the quality often suffers and the process ends up more costly due to change orders and correcting deficiencies.

Clients seem to agree that design build works best for standard projects that demand less control from the client’s perspective. One client reported success and satisfaction with his only experience with design-build when the system was utilized for the construction of two student residence projects. The client attributed the success of the projects for having previous work experience with the parties involved. However, he doesn’t picture himself using design-build for a complex project such as an academic building.

Design-build is more common in the private sector than it is in the public sector particularly for commercial and industrial projects. The decisive factor in the public sector is often based on the projects’ ability to generate cash flow and contribute to the bottom line.

For a real estate company that owns, manages and invests in real estate, design-build is the project delivery system normally employed for delivering projects. A director of architecture at such a company reported having good experience with design-build. He attributed that to having their own construction department in house with their own project managers. This gives them "good handle on the project" he said. It is worth mentioning that project managers in their construction department came from architectural technology, engineering or interior design backgrounds. They select their architects from a "fine tuned pool of architects" with whom they have worked with before and they value in their project architects "consistency with communication and less design and more production". He also added that "working with reputable contractors on the national level who they know very well" is a very important factor in their positive project experience and success of design-build. The contractor provides a guaranteed maximum price on the project. As a result the contractor is consulting on the project "he approves details and rejects ones that would increase the cost." However, he emphasizes that the company retains the status of designer and architect.

*P3*

Public Private Partnership initiatives have now been used very extensively in the U.K. By the end of 1995, more than 1,000 projects with a capital value of £25 billion had been completed. The U.K. experience highlights the importance in P3 projects (known as PFI projects in the U.K.) of the ability to integrate a number of companies with different skills into an effective partnership. Integration in design, procurement and construction for the full useful life of the development is essential for success, together with some very sophisticated financial engineering. Another lesson from the British experience is that the entry price for private firms is high, and it is very costly to retain the integrated teams of professionals essential to any company's continuance in the PFI "marketplace." Despite these difficulties, the PFI projects have effected a tremendous cultural change away from confrontation and contention and towards integration and partnership, and have demonstrated that such consortia recognize that good design is good business. [19]

The use of public-private partnerships in Canada is now well established at the federal level and in several provinces, including Ontario, New Brunswick and Nova Scotia. Expanding role of private sector in Ontario is government policy. The government is actively looking for revenue streams from private sector partners, through a variety of means, including the unbundling of parts of infrastructure systems, and encouraging public agencies to consider partnerships. Many government departments face gaping infrastructure deficits as facilities age and population increases.[20] The Ministry of Health, for example, does not have the capacity to deliver the necessary health care buildings (estimated at $6 billion) under its current budget, and formula of relying on 30 – 50% funding from communities.

[19] "Public-Private Partnerships: A Review of Literature and Practice," Saskatchewan Institute of Public Policy Public Policy (Paper No. 4), Dr. John R. Allan.

[20] The population of the GTA and environs is projected to grow by 3 million in the next 25 years. Ontario Jobs Investment Board's report, "A Roadmap to Prosperity."

**Architecture Education**

The education of the architect should constantly be upgraded in order prepare her for the challenges of practice. And most agree that architects seldom excel as business managers. Sometimes "we learn the hard way" one former student indicated. Several recent graduates or architectural interns have complained that architectural education in its current state does not prepare the graduate for the various stages in the evolution of the architect from starting as a draftsperson/ designer to becoming an associate or project manager and finally to becoming a partner and entrepreneur. In the 2002 survey of members, when asked to comment on education, responding architects felt strongly that students need to be better prepared by being exposed to more practical experience during their education,[21] and information about how businesses operate also needs to be provided. In the course of our interviews, architects conveyed the following ideas about how architectural education could be changed:

1. "Improvement in practice skills would be welcome from the point of view of an employer. As an example, today's architectural practice demands minimum entry requirements with regard to CAD technology competence. Textual and numerical data manipulation skills are also important. The apprentice must have a firm grasp of the tools of the trade. Incidentally, the required skill is not limited to the use of the tool; one's ability to manage the tools in the context of a project carries greater weight."
2. "As a fairly strong technical architect, I built my experience upon the chemistry, physics and math of a university entrance course, learned the principles of good building envelope design in university and continued to develop this strength through office projects, seminars and hands on experience, literally. If the architectural schools are not teaching the fundamental principles, they should be. I believe that the current emphasis on sustainable design has to be based on such principles."
3. "There should also be more direct experience with materials and technical research. Building code courses should definitely have much greater emphasis."
4. "Teach better computer skills, especially for drafting and rendering. The schools have been far too slow in realizing the importance of these skills for a young Architect's career opportunity."
5. "I never learned to program a building at school, I was only given the program so that I would start designing." There exist opportunities for architects to become involved before the selection and RFP stage of a project. Participating early is "key to setting up a building" - the architect helps the client to set goals and objectives, and as a result, will understand the needs and the business requirements of the client. These are skills that will stand architects in good stead for all projects. According to one architect, the problem is that the architect is

[21] In *Appendix 2.1* an initiative by the University of Manitoba called the Partners Program is detailed. The Partners Program is intended to establish a strong connection among the school, the profession, and the industry.

"stereotyped to be building designer." A focus on programming at schools can help to overcome this limiting stereotype.

6. "Teach better business skills. Architecture is a business, and I've yet to meet a graduate Architect who has a clue of what this means. Business acumen includes marketing, accounting, managing, negotiating contracts, etc., but more importantly it means learning how to deal with clients. This is one of the biggest problems facing the architectural profession."

**Paraprofessionals**

*Technologists*

Architects have acknowledged a complementary and supporting role of architectural technologist to architectural services. A number of architects described the value of technologists as technical staff who “tend to bring current technology into the office- the latest knowledge of CAD and project document management”. One of the architects described technologists as individuals that can “be relied upon to have a more focused knowledge of building products and systems.” Moreover, he added that technologists as “external contractors” assist small firms in the industry “to maintain a versatile approach to variable work loads.”

Architects agreed that both architects and technologists bring to the profession a paired understanding of construction technology issues. Architects who were initially educated or trained as technologists emphasized the importance of both disciplines in the industry. One architect indicated, “My opinion is that there are technically strong architects and technically strong technologists. The two receive quite a different educational experience with the technologist being exposed to more of the detail of component function and assembly, but the architecture student received more information on concepts and principles of good technical design. Technologists may have more of the 'what' but architects have more of the 'why'.” A partner in a well established firm offering services in the industrial and commercial sectors concluded that “in an ideal setting, the technologists work co-operatively with architects so that their complementary skills will help each other build better buildings, in every sense.”

A few architects as well have identified the threat of technologists to architectural services on two levels, competition and quality. Technologists often work closely with architects on all stages of the project. Their involvement in projects ranges from “construction drawings and details development to engineering co-ordination and some project management tasks”. One architect warned however, “as technologists get more experience in an architectural office, and provided that they have some design talent, they begin to take on more of the role of an architect. It is when these individuals set up their own offices and begin practicing as quasi-architects, that they begin to have a somewhat negative influence on the architectural profession.” Another architect revealed that self-employed technologists compete with architects mainly where “the requirement for architects is not mandated by building code.” As a result, they “certainly compete with smaller firms for work in the housing and small building categories”. Moreover, when technologists as well as non-licensed architects set up their own offices they become part of a non-regulated industry with no liability insurance and lower overhead costs. Therefore, “they tend to charge a lower fee” and “do not posses sufficient background in the building code and lack the proper training in design.” One architect agreed and added, “I have seen independent technologists preparing drawings for homes, for instance, although, for the most part, I've been thoroughly unimpressed with the quality of their designs. They do very good drafting, but I think their clients would be much

better served by architects when it comes to design, both for function and aesthetics". Consequently, the architects are concerned that such practices "lower the fee/service expectations of the uninformed public, who don't know the difference between an architect and a technologist. This reflects badly on our profession."

*Interior Designers*

Several clients as well as some architects established that architects in general are not marketing themselves as interior designers. As a result, the public does not associate an architect with interior design. Furthermore, one architect pointed out that often "interior designers gain experience in an architect's office and begin to expand their role in programming and building layout. As a result, another client indicated, "in addition to high-end commercial and institutional interiors, areas most architects are willing to concede, interior designers compete in office fit-up and planning". He also added that these areas "can be very lucrative for architects."

This was echoed in an interview with a real estate developer of commercial and office space. The perception within his company is that the design strategy that maximizes the bottom line is associated with 'good' interior. In general, it seems that interior designers are viewed as the best people to develop in-house design strategies, while the architect's role is more focused on building exteriors, structures, and code and fire safety issues. Another client explained that interior designers "know more about interiors and how to satisfy the goal of keeping people happy and comfortable so they could spend more money."

**Quality Assurance**

The past two decades have seen increased interest in quality management worldwide. The adoption of Total Quality Management (TQM) methods since the mid-1980s has enabled companies in the manufacturing sector to become efficient in managing quality and handling the continuous improvement process.[22]

The construction industry in general has long recognized the many benefits that can be enjoyed by performing high quality work, such as reduced construction claims, fewer errors and omissions lawsuits, increased client satisfaction, repeat business, and improved cost efficiency. The influential Eagan Report in the U.K. has described some of the reasons why the industry has a problematic record with the quality of its output. These include: inadequate training among builders and designers, poor communication among the various participants, inadequate or incorrect specification of products or materials, and inadequate feedback from recurring errors.[23]

The fragmentation of the industry between design and production is a contributing factor. This fragmentation makes communication among the various parties critical. Poor communication or inadequate or late information can cause major problems. Our findings in this area, discussed above, indicate that the quality of communication with the architect is of crucial importance. Our findings were also consistent with those of a recent study on clients in the US where they found that "during projects, the word 'communication' becomes synonymous with 'relationship'."[24]

Increasing numbers of clients have also implemented quality systems. Clients with quality systems are likely to give preference to "supplier firms" who themselves have a quality assurance system. But to date, ISO 9000 has not had a major effect on architects in Canada. Outside of Quebec, only five architecture firms have ISO certification. In Canada, it seems to have been the insistence of clients who themselves have obtained QA, and have rated it as a worthwhile attribute, who have coerced architectural firms to undertake the process.

The first issue that needs to be understood when assessing quality assurance is exactly what "quality" in this context refers to. As discussed above, each party in the building process views a building from a slightly different perspective. Each party may assess the quality of the building in a different way. Architects tend to view "quality" referring to the "quality" of the architectural design. Clients tend to view "quality" in terms of how well the building performs its function and how efficient the process was by which the building was built. Visitors to the building may concentrate on the "quality" of finishes in the public areas.

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[22] "ISO in the service sector: perceptions of small professional firms," *Managing Service Quality*. Rodney McAdam and Norman Canning.

[23] Eagan lead the task force "Rethinking Construction: the report of the Construction Task Force to the Deputy Prime Minister" on the scope for improving the quality and efficiency of UK construction.

[24] AIA client study, "The Client Experience, 2002"

## *ISO 9000*

The International Organization for Standardization (ISO) has developed the ISO 9000 series of quality management standards. First released in 1987 and revised in a limited manner in 1994, they underwent a major overhaul in 2000.

The ISO 9000 quality management systems (QMS) standards are not specific to products or services, but apply to the processes that create them. The standards are generic in nature so that they can be used by manufacturing and service industries anywhere in the world.

ISO 9001 uses a simple process-based structure. Many practices in Ontario, including those not taking advantage of the OAA's Practice Consultation Service, have much of the framework of the ISO requirements integrated into how they currently do business.

ISO 9001 registration is carried out by registrars, accredited organizations that review the organization's quality manual and other documentation to ensure that they meet the standard, and audit the firm's processes to ensure that the quality management system described in the documentation is in place and is effective.

An architect's first impression of ISO 9001 is often characterized by a difficulty in relating the system to architectural practice. The language of the standard may not appear familiar to architects.

For a 2-5 person architecture practice, the ISO registrar charges between $1,500 and $4,000 in the first year, and about $500 to $1,000 annually thereafter. The on-site visit in the first year takes 1 to 2 days, and 0.5 to 0.75 days every other year. For a 50 person architecture practice, the ISO registrar charges about $7,000 in the first year, and about $2,000 annually thereafter. The on-site visit in the first year takes about 5 days, and 1.75 days every other year.

A larger architectural practice may also invest in the services of an experienced consultant (also accredited as a trainer of auditors and employing registered lead auditors). However, this may cost on the order of $40,000 for a 100-person practice.

*Perceived Advantages / Benefits of Quality Assurance (QA)*

1. **Greater consistency and reliability in the service provided.** Client confidence will grow as requirements are met.
2. **Improved marketing opportunities.** QA provides a third party assurance to clients that the services provided have been audited to meet an established standard.
3. **Identification of areas for improvement.** Staff is encouraged to monitor and improve their own performance.
4. **Enhanced efficiency through the streamlining of operations**. A properly run system saves money. Cost savings and productivity gains will increase through lower failure costs.
5. **Reduction in risk.** In the litigious construction industry, the provision of better work processes and documentation will reduce liability.
6. **Improvement in the perception of the management capabilities of architects generally.**

*Perceived Disadvantages / Limitations of Quality Assurance (QA)*

1. **Resource intensive to obtain and maintain.** At the outset, the introduction of a QA system involves a considerable amount of senior staff time, and a significant consulting cost. It involves a considerable amount of paperwork and can be bureaucratic in nature.
2. **Greater scope for evidence of negligence.** The documentation required may also constitute evidence in legal proceedings.
3. **Origins in manufacturing industries.** As noted earlier, QA originated in the manufacturing industry where standardized products are created through a single and continuous design and production process under controlled conditions. This is not the case in the design and construction of buildings. Furthermore, QA does not deal directly with design quality as such, but the process of providing quality service.
4. **Organizational resistance to change.** The transition to a QA system may not be a very smooth one. It is essential that the new system have the full support of senior partners.
5. **Difficulty in quantifying benefits.** Difficulties arise in making quantitative assessments of what the potential savings are likely to be.

**Sustainability**

In Canada and around the world, the notion of sustainability in the field of architecture is gaining prominence. A growing number of people representing a variety of perspectives (such as architects, engineers, government officials, builders, project owners, customers and ordinary citizens) are beginning to understand the ramifications of consuming forty per cent of the world's energy use and raw materials on buildings. However, the reality is that only a small number of these stakeholders fully understand the impact that sustainable design in architecture can have on improving the environment.

Sustainable design in architecture is synonymous with several other terms that essentially refer to the same concept of making the performance of the building more environmentally friendly. This concept is variably known as green building, sustainable architecture, sustainable design, environmental architecture, green design, sustainable development, etc. Some people use the terms almost interchangeably whereas others view sustainable development in the broader context of social, economic and environmental equity and improvement. The other view is that green building or sustainable design is specific to the architectural goal of improving and creating buildings that use energy more efficiently and reduce pollution. It is these projects that help contribute to the larger goal of sustainable development.

*Key findings on Sustainable Design in Canada:*

- Sustainable design is multifaceted with varying degrees of environmental performance being incorporated into each project. There are an almost endless number of ways to achieve a measure of sustainability in the following areas: sustainable sites, water efficiency, energy and atmosphere, materials and resources, indoor environmental quality, innovation and design process.

- Sustainable design projects are currently being seen primarily in the institutional sector with only a relatively limited number of projects in the commercial or residential sector.

- Demand for sustainable design buildings in the institutional sector is trending upward as an increasing number of stakeholders become more familiar with the concept of sustainable design. However, the number of projects incorporating significant levels of sustainable design is still relatively low.

- Demand from commercial clients for sustainable design is currently limited and consists primarily of enterprises with an already strong commitment to being environmentally friendly such as Mountain Equipment Co-op.

- Selling points for sustainable design projects include: greater environmental performance of the building, reduced energy needs, reduced overall building lifecycle costs, reduced pollution, overall improvement of functionality, quality, and comfort

for building occupants leading to greater productivity, greater recyclability, greater marketability and currency from improved public relations image resulting from being environmentally conscious.

- Drawbacks for selling sustainable design primarily revolve around the perception that sustainable design requires additional capital costs and / or potentially lengthy payback periods. Additionally, lack of overall awareness of sustainable design makes it a somewhat novel and difficult concept to promote / sell.

- The added capital costs of incorporating sustainable design versus comparable traditional building range from nil to approximately 4-8% more with the average added cost being approximately 5%. Significant fluctuation in these figures is a given due to the nature of the assumptions and variables incorporated into each project. Conservative margins of error serve to further compound the issue of accuracy of added costs in sustainable design projects making it difficult to arrive at meaningful generalizations. It is also difficult to generate accurate comparisons between non-sustainable base case buildings versus green buildings. Additionally, a wide variety of viewpoints on the topic of added cost have been presented without enough long-term evidence to provide a definitive or conclusive resolution to the issue of added cost.

- Financial incentive and assistance programs from various levels of Government exist to promote the use of sustainable design. At the federal level, C2000 and the Commercial Buildings Incentive Program are the two main programs. These and other financial incentive and assistance programs are key tools in reducing or mitigating some of the potential added up front costs related to sustainable design.

- The use of lifecycle costing models is a primary method to determine payback periods for projects using sustainable design to reduce building maintenance and operating costs. However, in practice, this method is seldomly used by architects. Lifecycle costing generally falls under the mandate of outside consultants with experience in financial and environmental costing and modeling. Lifecycle costing and modeling software and other resources are becoming increasingly available. The lack of concrete evidence adds to the relative uncertainty regarding this issue.

- A variety of methods, techniques, and criteria exist to define and evaluate the performance of sustainable design. Chief among the programs of evaluation is Leadership in Energy and Environmental Design (LEED), which was developed by the United States Green Building Council. The Building Research Establishment Environmental Assessment Method (BREEAM) is the current leading system in the UK. Canadian architectural agencies & individuals are currently in the process of developing and refining their own criteria for assessing sustainable design within a Canadian context. Canadian adaptations of the LEED program have been pioneered in the province of British Columbia and are currently being introduced in regions across Canada.

Significant benefits and drawbacks are inherent in each system of evaluation; however there is significant value in adopting a uniformly recognizable standard system. The added value comes from the ability to market a project or project opportunity based on its adherence to an established system or standard. For instance, the City of Calgary has adopted a policy whereby all of the new projects that it commissions must meet at least the LEED Silver rating. The city has recognized the importance and value of sustainable design, and the LEED system has provided it with an avenue to measure the effectiveness of its new buildings in achieving greater environmental performance.

- Integrated Design Process (IDP) is essential for effective management of the sustainable design process to ensure that efficient coordination is maintained and that overall project and design costs are minimized. Several sustainable design evaluation and assessment systems require the use of IDP due to the benefits derived from working in a collaborative setting from the outset of the project.

- Legislation is currently being suggested or sought in several provinces mandating the use of sustainable design in all publicly funded new building or renovation projects. As mentioned above, the City of Calgary is a good example and other levels of government in Alberta, British Columbia and Manitoba are rapidly moving in this direction.

- Despite the still relatively limited use of sustainable design for building projects within Canada, the quality of the sustainable design building stock has received international recognition stemming from competitions such as the Green Building Challenge. A small number of firms in Canada have begun to specialize in sustainable design and are rapidly gaining recognition for their work and expertise in this area.

- During the past three years a growing number of Canadian schools of architecture such as those of the University of British Columbia and the University of Waterloo have dramatically increased their emphasis on sustainable design within their curricula. In the coming five years, a large number of graduates will enter the workforce with significantly enhanced and potentially superior skills in the realm of sustainable design.

**Firm recommendations**

Clients want high-quality buildings delivered on time and within budget. The constellation of activities in the 'value' chain that leads up to a new building involves the crucial activities of the architect. Architects are uniquely positioned in the chain, are armed with distinct skill sets and professional designations that makes them very valuable when engaging in other related activities as well.

The challenge as an architect is to find the services that you can do better than the client, or the other providers that currently do them. Some of them may be traditional services, some may not be. You may engage in activities that have less and less to do with what you thought an architect was supposed to do. The bad news is you will always have to be aware of your competition - the stiffest of which will come from other architects - who by virtue of the same professional accreditation, are considered by clients as meeting the minimum level of competence required for a project.

Superior aesthetic design alone will not be enough to secure a healthy diet of projects. A building project is a means to an end for every client, and only select projects (i.e. monuments, galleries) have innovative aesthetic appeal as their 'end.' Only a handful of architects will be able to secure a living working on these projects. To be successful, the majority of practices must work to differentiate themselves from their competitors, and communicate the value of their services for the *client's projects* (not *your commissions*). For traditional projects, this will include explaining the value of your quality assurance processes, your attention to detail in the specification, and site supervision phases of construction. All clients can understand the relationship between good drawings, quality processes, and quality buildings. And many clients are willing to pay more for it.

The delivery of quality services addressing unique client needs will unhinge the relationship between construction cost and fees established in past guidelines. Many clients are open to exploring new ways of arriving at appropriate compensation for architects – as long as they can see that it is valuable for them. Old rules-of-thumb of percentage fees are more important in the minds of architects than of clients.

Collectively, this simple approach will ensure that practices in Canada thrive into the future. No piece of legislation can ensure the relevance of a profession. For you individually, it will make the 'fee problem' diminish in importance. You will still be busy. You may choose to specialize in certain fields (requiring a lot of continuing professional development) to command higher fees, you may find particular niches where you do not experience heavy competition, you may keep your operations very efficient and turn fees into respectable compensation and profits – to name only a few options. The choice is yours.

General guidelines on how to accomplish this follow below: first with a discussion on the importance of strategic planning in 'Designing your practice' and 'Taking the right risks.' Elements of a strategic plan that should be considered follow in 'Strategic plan development,' with special items highlighted for different firm sizes, as well as case studies outlining how companies have incorporated these principles and succeeded.

In the following discussion, when we speak of 'small' firms, we refer to practices with less than five employees, 'medium' firms with between five and nineteen employees, and large firms with more than twenty. In the 'Strategic plan development' section, items that have special relevance for these sizes are marked with the following icons:

 ,  ,  and refer to small, medium, and large respectively.

**Designing your practice**

The term 'strategic planning' seems alien, and perhaps even distasteful to some architects. But the parallels with design development, and its importance in elucidating and achieving your own goals, is unmistakable.

The parts of strategic planning that most find difficult - imagination, collaboration, execution - come as second nature to architects. An architect's ability to imagine, in detail, a bold new future is unparalleled inside and outside of the construction industry. The collaboration needed to bring together a cohesive plan that entails the often-conflicting elements of marketing, finance, and human resources closely resembles the collaboration required to put together a functional design. Both processes involve iterations and feedback, and both involve working with constraints – especially time and money – in their development.

One area where the parallel breaks down between design development and strategic plan development is an imposed deadline and the accompanying sense of urgency. An architect's heroic efforts working under tight timelines on a project is rarely repeated in putting together a business plan for their practices. It is worthy of note that it isn't a favourite activity of most executives in other industries either, but external forces – particularly those related to producing reports for shareholders – provide pressure and exerts discipline on the process.

Amongst architects, oft-cited reasons for not completing strategic plans are that the environment is changing so rapidly, and that the practice and the principal(s) do not have sufficient financial and human resources to go through the process. Part of the need for strategic plans is to remedy these very problems (the chicken comes first), and depending upon the size of the firm and its quantity of resources, different approaches may be used.

**Taking the Right Risks**

Every activity undertaken by a principal is an investment and has a return. Successful practitioners in all firm sizes are successful by virtue of making wise investments. A few are gifted enough do so innately, while others take time to develop a vision, make plans to implement it, make sure that it's implemented, and make sure that it's the right plan. It is not only a question of 'are we doing these things right?' but of continually asking, 'are we doing the right things?'

After surveying the market, we were inclined to say that architects are very risk averse when making investments. The two clearest examples of risk aversion relate to sustainable design and quality assurance. Many clients saw value in practices that were able to present them with solutions that incorporated sustainable elements (this, of course, does not mean that all clients will blindly select projects on this one criterion). Many clients also saw value in practices that could make a strong case about the quality assurance processes they adhered to (3rd party certification, like those granted by ISO, appealed to many larger clients). Yet, when the level of interest that clients had in these elements is compared with competencies being developed and promoted at practices across Canada, there is a significant disconnect. It appears that most practices are waiting for the shoe to drop on both of these issues and are not taking risks and making investments in differentiating themselves in these ways that clients' value.

Many practices are taking risks of a different sort – risks that involve undervaluing these same concepts of sustainability and quality assurance. Neglecting to spend time on developing and implementing a plan is taking a risk. For small and medium-sized practices where principals are at the same time, the head cook and bottle washer, perhaps the greatest risk is of burning out. The idea of a sustainable practice extending long into the future must be considered. Your practice is not a construction one-off. If you plan to be running your practice in twenty years, or trying to sell it in ten, think about some of the elements, some of the competencies, relationships, that you can slowly build to give it value and to make your life easier.

Planning is necessary and quality assurance principles should be adhered to. Practices should not be run like bad projects. Good drawings (targets and implementation plans) need to be known by other consultants and contractors (your employees), so that an inordinate amount of time is not spent answering RFI's and putting out fires. But as courts around the world have recognized, no architect is expected to produce a perfect set of documents, or in this case, a perfect implementation plan of a business strategy. Furthermore, the time involved in participating in overhead activities such as developing strategic plans, takes away from other revenue generating activities.

For smaller practices, developing the plan may not need to take more than forty hours, and can be done over the course of weeks and months. You can dedicate a notepad or Word document to jotting down ideas while you're working on other activities. Practices can hire management consultants – and not necessarily from the top-flight firms – to

facilitate and document the planning process. Because the planning process should occur at regular intervals, it would be wise for practices to become familiar with the process and the terminology. Help can also be found by raiding the cupboard of existing information on strategic planning, and on market sizes and trends on the Internet. Some associations have also produced 'public goods' for practices in your position. The MBA (Mastering the Business of Architecture) toolkit developed by the OAA is a particularly good reference.

Think about going boldly down new corridors, and innovating on projects, and on the design of your practice in ways that will create wealth for your clients. On corridors that follow client demand, you'll find doors of opportunity that open to you that you couldn't have seen before. If desired, you may choose to morph from a firm committed to a client's project to a firm providing a wider range of client's services and finally to a firm totally responsible for some aspect of the client's strategy.

You can start a virtuous (rather than vicious) cycle today. In Ontario, in particular, the market has been buoyant and many shortcomings can be masked, but developing a portfolio of projects and skills now can help you through future downturns in construction activity, and can give a reputation that will allow you to attract the best people and projects when the going isn't as easy.

**Strategic plan development**

Strategic planning can be a very long and arduous process. Implementing a plan can be even more arduous, and fraught with political and cultural opposition. Under each of the main headings below, there are a number of points to consider to re-shape practices of all sizes – many of which, if implemented, could have profound implications.

Consider that when in competition, slight advantages can translate into disproportionate rewards. In a horse race, the winner can cross the finish first by a nose, and receive fame and fortune, while the second place horse is remembered only by trivia buffs. So it is in business. Slight advantages can be the difference between winning and losing any given project. So as you are reading through, think of the items that are of highest impact and most feasible, and get started on thinking about ways to implement them.

*Clarify your vision*

- Personally, what do I want from a career in architecture? What kind of clients do I like to work with? What kinds of projects?

- What clients look like they have a successful future ahead of them that I may be able to contribute to and participate in?

- Gather information on what other practices are offering, and what they are saying about themselves. Access all available information on market sizes, and emerging trends.

**Involve feedback**

- Involve key staff and/or friends of the practice. Consider including your banker, along with other staff from your accounting/finance department to discuss the possibility of using cash on hand more effectively, borrowing more (or getting your books in shape to borrow more) or adding new investors.

- Review feedback collected from clients. If non-existent, develop a strategy to do a sweep of past clients, and maybe of decision-makers on past projects that you lost.

- Investigate innovative alliances that might benefit your clients and add to your distinctiveness - look at academic institutions, competitors, venture partners, related kinds of consultants, and other entities with creativity.

- Consider hiring a professional to conduct focus groups with people who have knowledge about a market that you are considering pursuing.

**Think about your value proposition.**

- How will we be different from others in a way that matters to the client?

- What is the best way to model my business to deliver this?

  - Will I work in a coordinated network? With whom will I work? How can I prepare myself / my practice to be ready to convince partners and clients that the integration will be seamless?

  - Will we develop deep knowledge in specific areas, or broader overlapping individual skill sets?

**Think critically about personal/firm strengths, weaknesses**

- What do I need to learn?

- What inventory of skills do we need to achieve the vision?

- Who do I need to hire? What professional development and compensation programs would be appropriate for the staff?

Positioning – Small Practice Example

We spoke with a partner of a small firm (Positioned Practice) that is satisfied with the profitability and future prospects for the firm, and attributes its success to positioning, and shedding traditional concepts of running a practice.

Positioned Practice consists of three full-time staff and additional staff hired on a contract basis. The architect could well relate to the fact that many small practices experience low profitability as he was in that position himself for many years. Most of his 35-year career, he explained, was competing against other architects and "trying to do it by being a better and better designer and by doing it for less and less." He eventually realized that "it was just a hopeless way of going about things because you were never really going to be able to get anywhere," so he eventually found himself being forced to switch gears to become a "service provider" – seeking to look after people's best interest in projects.

Even though Positioned Practice operates in a niche market, it still competes with other specialized firms. The partner indicated the firm's ability to stay ahead of the competition is based on good track record, on knowledge of construction costs and practical industry realities, and possessing the flexibility to deliver a service tailored to the project requirement.

"I did not know exactly what I would be into once I left college but I always imagined that I would be in control of a lot because it had been presented to me in my education that an architect would be the leader in construction projects. So I grew up with that in my head and went off on a path on which eventually I realized again and again and again that I would never really even start getting there let alone arrive. I knew I had no choice but to change my thinking; my whole view of business, even though I still believed in the idea of someone with the knowledge, training, skills and experience of an architect to be the leader."

He said that positioning was a key to the current success of his business and that he didn't get there by design, but rather by selling services and using all that accumulated knowledge in ways that most architects would not typically think of as within the sphere of conventional practice. He said that the surprising thing was that now he uses all the same knowledge and most of the skills picked up over the earlier years, just not in the same way and not at the usual downstream stage of a typical project.

**Business Risks**

- Do I have criteria in place to make go / no-go decisions on projects? The OAA's MBA document has a section that can be used / modified by your practice.

- What is the most money I can spend pursuing any one project?

- Are there on-going engagements, or customers that are more trouble than they're worth? Can I convert them into good, paying customers, or should I cut them loose?

- Can I be doing more to balance my workload, improve my knowledge and skills in other aspects of the profession? Should I diversify the scale of my projects (i.e. conducting feasibility studies and master planning on larger projects and full services on smaller ones)?

- Who in my company can I not afford to lose?

- When will I know that I have to downsize? And who should I let go? Will they be a competitor in the near future? What will be the goals for the re-sized firm? Should it become a smaller version of the current firm, or a new firm with a new vision?

- What kind of portfolio of projects would be ideal? Am I overexposed to fluctuations in any particular market?

*Marketing Mix (Fees)*

- Designing nice looking and well functioning buildings does not constitute a marketing plan. Promoting the firm has to be separated from design strategies, and must be regularly revisited (as shown at right, effective techniques will change over time).

**Ontario - Effective Marketing Techniques by year and size***

| FIRM SIZE | 1996 | 2001 |
|---|---|---|
| **1 employee** | Cold calls | Advertisements |
| **2-4 employees** | Government trade missions | Proposal preparation |
| **5-9 employees** | Electronic network | Trade shows and exhibitions |
| **10-19 employees** | Government trade missions | Seminars and presentations |
| **20-49 employees** | Advertisements in Trade journals | Government trade missions |
| **50-99 employees** | Competitions | Advertisements in trade journals |

**Derived from surveys by calculating highest average revenues of firms for each selection*

- Get the message out that you are a 'trusted advisor' and that clients' needs are of the utmost importance to you. Counter old stereotypes that architects are arrogant, lack business skills, and care only about designing buildings. Gather and post testimonials from other clients, consultants, contractors you've worked with before – expressing how well you communicated and delivered on their project. Consider eliminating the word 'commission' from your communications with clients.

- Be conscious that materials and communication are not catered to other architects (or to your old professor from university). On websites and materials, speak less about design philosophy, and include more pictures of people – like you (and your team) working with clients. Include messaging such as "we realize that the building only has value when it connects to the strategy, technology, functionality, and economics of you and your users."

- Work on your presentation skills. Consider filming and reviewing your performances, and again make sure that your value is expressed in terms that clients can understand. In presentations and proposals, use the Work Breakdown Structure (WBS) or a similar tool to break down your service into value-added components that are comprehensive, easily understandable, and impressive to the client. (Some of the clients we interviewed didn't understand that the architect's fees included the costs of sub-consultants, and they were certainly lacking an appreciation of all of the other items that the architect undertook on their behalf.)

- Experiment with fee setting. Calculating fees as a percentage of construction cost may be selling yourself short, and in the eyes of the client, this method does not necessarily align with their goals. Consider incorporating a 'success' fee for projects that meet client goals.

- For proposals, learn as much as possible about the potential clients to help them move from what they think they want to what they truly need. At the conceptual stage of a project, consider the business and bottom line requirements of the project as constraints, along with the other issues learned in the studio (topography, orientation, nature of the landscape, views, etc.)

- Establish and build relationships - community associations, consultants and contractors – as all are in a position to recommend. There are many influential players in different sectors of the industry that are involved early and know much about forthcoming projects. Identify people to communicate with about the value of services you provide up and down the value chain – activities such as building industry expert, consultant for feasibility studies, post-occupancy evaluations, etc.

- Get methodical about promotion. Develop a plan for each of the ways that you may connect with potential clients – from trade shows and conferences, to the distribution of promotional materials and websites, to making 'cold' calls to people to set up lunch or dinner meetings. For example, on your firm's site, understand the level of activity (number of visitors), try to draw more to the site (perhaps through sponsored links, preferential search listings), and understand how visitors navigate the site, so that you can redesign to make their experience richer.

- Consider offering appealing commissions to referrers. Consider developing a motivated sales team in the same way that other companies in other industries do, or

consider sharing a sales force with partners to increase visibility and to find deals and opportunities before competitors.

*Technology / Delivery*

- Develop or use quality assurance guidelines. Be passionate about their adherence.

- Study technological advances in information system software and hardware. Follow new information technology product literature and reviews to discover trends in building information systems and digital equipment. Look for solutions that will help projects move faster without compromising quality of design and results - i.e. electronic submission of time sheets/expense reports. Look for software and hardware that can help you have better relationships with partners, consultants, and clients (i.e. customer relationship management software, personal digital assistants)

- Manage client expectations. In certain cases, considering telling them that errors and omissions are part of every project, and that the courts recognize that they may amount to 10% of construction costs for extensive projects. Suggest that they establish a contingency fund for these expected expenses.

- Collect data and set targets for operational activities – time and cost allotted to design development, production, and site supervision costs. Try to develop process or discipline to avoid eroding project profitability on

Technology's value add – Technology Company, USA

'Technology' employees are encouraged to try nearly any technology they think may improve the quality or speed of their work. When approached recently by a staff member who wanted to try voice recognition software, the CEO told the employee to get a software package recommendation from the IS department and proceed. In the firm's "relatively free operating culture," the CEO said some decisions—including IT policies—are still made at the top, but he noted that "many, if not most good ideas bubble up from the bottom. The key to successful leadership is to be open minded. Spend money, make mistakes."

The results of Technology's heavy investment in technology have been many. As a regular course of business, the firm now builds project extranets for the building team. They maintain a company intranet. They use computers for nearly all facets of a project's production

What has been key for Technology is to use technology to find new ways of providing value to clients, and in turn to charge clients for those services. "I have less concern about charging a client for something like file sharing than I do about surviving. We've positioned ourselves and differentiated our firm through our use of technology particularly the speed at which we can do business. I see these moves as necessary for survival and increasing our value, while diminishing the impact of our competition. Clients are willing to pay for our expertise,"

For the future of the profession, the CEO urges fellow architects to reexamine their role as technology arms them with more tools. "Amazon.com replaced a bookstore an architect would've designed. We know how people perceive and navigate space," he said. "We can add balance to technology—maybe there is a role for us to help ensure those enduring values we support are maintained." He continued by noting what he believes the frontiers to be for the architectural profession: "digital portfolios, digital galleries, digital markets and digital work environments." In the area of delivery of services, he stressed the importance of keeping communication digital. "As soon as you hit print, digital information loses all its knowledge," he said. O'Malley reminded architects of the power of sharing a digital model with clients as opposed to drawings, and of the fact that an architect's design can be carried "further into the construction process by staying digital."

"Rallying around technology has really contributed to our esprit de corps," he explained. "Collaboration is a foundation of our firm and technology has reinforced that ability." With a turnover rate closer to 6% rather than the industry average 20%, the principals at Technology say their commitment to technology has helped them harness the power of their most important asset: their staff.

design development alone.

- Think about ways to leverage the skills of the seniors with the efforts of juniors through project team structures.

- Consider undertaking the ISO certification process.

  - For a 2-5 person architecture practice, the ISO registrar charges between $1,500 and $4,000 in the first year, and about $500 to $1,000 annually thereafter. The on-site visit in the first year takes 1 to 2 days, and 0.5 to 0.75 days every other year.

  - For a 50 person architecture practice, the ISO registrar charges about $7,000 in the first year, and about $2,000 annually thereafter. The on-site visit in the first year takes about 5 days, and 1.75 days every other year.

'Network' Practice – An Ontario Example

We contacted a Canadian firm in Ontario that is starting to expand its service offerings abroad through this form of practice. The firm's strategy is to assemble a team of international consultants with specialized expertise in the project's building type and experience in the region where the project is being carried out in order to meet the challenging needs of such project. According to a firm representative, the process expedites execution of the project, "right now online resources and communicating through e-mail speeds up the project and makes everything more efficient". He also added that the process has an economic dimension since "it saves a lot of charges as far as printing material and couriering it oversees."

In order to be successful with network practice and with the business in general the representative highlighted the firm's investment in new technology. Returns on such investments are realized when the firm performs projects faster, more efficiently and cost effectively; "it is crucial that we use technology to meet the need of our clients, for example technology permits us to build a website for each project where all the consultants can access the latest drawings when provided with a user name and password. As a result "clients appreciate the fact that you are using this technology to get the job done when they want it done and under budget." He explained that a few years ago, given the firm's size, it would not have been possible to carry out their projects such as the ones done overseas as efficient as they were done, on time and on budget, without today's technology.

There are a number of risks associated with this form of practice however. It is often challenging to find the right partners. The representative mentioned the main challenge is often the need to work with distant parties based on reputation without having previous work experience with them. It is often difficult to determine in advance the competency of the partners involved; "if they are going to be a partner then you are taking a bit of a risk that these people are going to be able to live up to your kind of standards to get the job done. So it's difficult if you don't know these people as well as you know some of the people in the area here where we know how they work and we can rely on them."

Moreover, network practices inherit the risks of carrying projects abroad such as having to deal with cultural differences and foreign country risks. For example, he mentioned that the firm "had to get a lot of things translated from English to the local language at an extra cost." In addition, on a foreign project "the travel back and forth is time consuming and expensive as we also had to have people on site there all the time so we had to get someone to live there for a year or a year and half to oversee the project." Another important issue is collecting money from clients abroad; "we have also had some problems collecting money from people abroad as well, there seems to be slower payers abroad than people in North America."

Despite the risks, the representative indicated that this form of practice will be the way of the future. Severe competition in the industry is compelling the firm and others to search for partners all over the world "because now it is so competitive that you have to find work anywhere you can in order to survive in North America and a lot of time you have to go oversees especially in third world countries where they are developing." In order to carryout these projects "you have to find partners in different countries around the world or network to get partners."

It is also important to mention that in spite of being a design-oriented firm with a "world-wide reputation for excellence in design", the firm emphasizes "supporting clients' objectives with sound problem-solving business sense". The representative stressed, "We try to do both because we always try to get repeat business and we want the client to be happy." As a result they are happy with the profitability of the firm so far.

- Allocate overhead by department based on cost drivers (such as % of overall staff) and incorporate into fees charged.

- Codify and develop performance measures for as many processes as possible. Much changes between projects, but much is repeated. Think about ways that other forms of knowledge may be codified (and perhaps sold as products).

*HR / Learning*

- Principals must provide the inspiration, direction and motivation necessary to move a firm towards the achievement of their vision for it. Outstanding practices are consistently able to identify, attract, and retain top performers and get them committed to their strategy.

- Consider developing a mission statement that characterizes your firm and its goals. (e.g. "We are knowledge-technology driven practice that uses creative thinking to develop knowledge/processes to solve unaddressed client needs in new and innovative ways."[25])

- Conduct post-project evaluations and incorporate them into performance reviews. Design training programs based on the results.

- Establish guidelines and approaches for finding new recruits.

- Think about setting high-level goals on retention rates, and organizational learning objectives - what do / did we need to learn this year?

- Explore variable pay arrangements based upon firm and individual performance, and compensate for business development opportunities aligned with known firm goals

- Think about the effects that the organizational structure has on the practice. Does it permit the collaboration needed to deliver services? Does it reflect practice principles? (e.g. do we have an executive in charge of quality, or another in charge of marketing and sales?) Does it make team leaders responsible for controlling marketing budgets and meeting revenue targets?

[25] The quote is very similar to one used frequently by architecture thought-leader, Richard Hobbs, FAIA, when speaking on the topic of redefining the practice of architecture.

*Financial*

- Estimate upcoming capital costs (funds for acquiring equipment or meeting other needs). Estimate sources of upcoming revenue (including proposals outstanding and an estimate of the probability of converting them into projects) and develop multiple scenarios for possible financial conditions in the future, using metrics such as average revenue / salary per employee.

- Develop targets for accounts payable and receivable and monitor closely.

- Gather information on per project costs – specifications, contract administration – and make information available to aid in the fee setting process. Make sure that RFI's land in a central database and are tracked.

- Track and set targets for overhead rate (overhead by total direct labour), and utilization rate of staff.

- Consider sharing high-level financial information with employees

**Premium fee services**

Firms that cite quality and service as strengths will not attract the attention of potential clients. Unique service propositions must be communicated to clients to allow practices to separate themselves from the pack, and enjoy premium fees. Below are some ideas on what service propositions would be valued by clients:

- Quality control as an inherent characteristic of your firm and what it does – an attitude permeated through the firm's processes, culture, people, and project relationships.

- Leading edge technology that allows enhanced communication between the client and other teams on a project.

- A deep design process that involves rigorous interviews and interpretation elements (even more so ones that draw from a diversity of fields such as sociology, cognitive science, linguistics, and marketing strategy).

- 'Value' architecture - designing buildings for the most effective use of client's money, designs assembled with cost and functional models, including benchmarks for the new development expressed in the client's own terms.

- Workable solutions for sharing business risks, competencies and rewards (possibly including subconsultants and the contractor). Proposals that allow the client to benchmark what that value-added is including a participative approach to distributing it.

- Detailed post occupancy evaluations with benchmarks for evaluating the building's function, entailing "continuous improvement" where feedback is systematically collected from projects and incorporated into future design processes.

- On-going development of standard buildings and design processes before required. Have pre-assembled design processes and components shared between models that combine good architecture with good engineering.

- Accounting and construction management systems designed "to maximize profitability" through cost management. Preparations of estimates at all design stages beyond calculating capital costs on a "cost per square foot" basis. Detailed knowledge of asset management, including maintenance decisions based on life cycle-cost analysis.

- Expertise in sustainable design, and ability to speak with clients about greater environmental performance of the building, reduced energy needs, reduced overall building lifecycle costs, reduced pollution, overall improvement of functionality, quality, and comfort for building occupants leading to greater productivity, greater recyclability, greater marketability and currency from an improved public relations image resulting from being environmentally conscious.

**Association Recommendations**

Across the country, revenues at architectural firms have kept in step with construction activity. Many Canadian architectural practices have diversified their offerings, and have enjoyed growth in revenues from non-traditional services (particularly in interior design, programming, and urban planning). At the same time, though, there have been indications of deeper problems in the industry.

The profession, particularly in Ontario, is having difficulty attracting new licensed members. There is also a considerable level of anxiety among individual architects nationwide related to increasing client demands on increasingly complex projects, and a perceived problem with fees. At the association level, feedback from various stakeholders has also highlighted quality of service as an issue, and areas for improvement include building code knowledge, the provision of general review services, and the overall predictability of project completion. Our interviews with clients from across the country also uncovered issues with respect to quality, including poor communication among project teams and owners, and a lack of attention to detail at the 'back-end' of the projects.

Quality issues should be considered public enemy number one at associations. They are issues that damage the overall reputation of architects, and jeopardize the status of architecture as a profession. Addressing quality issues will also help firms with the fee related problem. Project mistakes can be costly and can result in inadequate returns, keeping firms from compensating their employees attractively, and achieving levels of profitability necessary to sustain competitiveness.

Associations must continue to use the privilege of self-regulation to set and enforce performance standards, to provide tools to help architects improve their quality assurance processes. Gray areas relating to the provision of quality services must be removed so that architects are not tempted to shirk their responsibilities when engaging in projects for unreasonably low fees.

Architects appreciate the dynamics of competition, and know that price is an important consideration when clients choose among proposals. Even in jurisdictions with fee schedules, including in Ontario's recent past, practices disregard recommended and mandatory fee schedules for a variety of reasons: because they are hungry for projects to sustain the practice, and because the rules surrounding the provision of quality services are not clear or well known.

One of the more hazardous consequences of fee schedules is that it allows unhelpful perceptions about the practice of architecture to linger – that services are provided and the messy business of setting fees takes care of itself. Practices are discouraged from offering expanded services when fee schedules can serve to impose an arbitrary cap. Firms that can provide efficient services are also disadvantaged when trying to secure

additional projects by passing along some of their operational savings to customers. Such problems can contribute to under performance in the industry.

To demonstrate these problems, consider the four caricatures of how architects perceive themselves below:

> We are great designers and artists. We'll design great buildings, and when asked about our services, we'll talk about our design philosophy and show pictures of our previous work. Our work, our buildings will speak for themselves and the money will follow.
>
> We are offering the legislated services of an architect. We will provide traditional services in the way that we were trained. We know that you are concerned about cost just as much as 'design' and we recognize the need to take on projects to maintain our livelihood. We'll bid competitively, and try to take on as many projects as possible. We can't spend too much on marketing, so when we're not busy, we'll keep an eye out for local opportunities.
>
> We are a strong delivery company. We are strong technologists, as well as architects. We walk the walk on quality assurance; codify our knowledge and delivery processes, so that we can achieve consistent levels of service and profitability. We will look for opportunities to take on projects that require a lot of efficiency, including those that seem disagreeable to other practices ( design-build, for example).
>
> We're in the professional services business. We will be your advisor through the complex, multi-disciplined process that we know best. We will move beyond building projects to address your other needs (we can help you raise money, for example). We will develop deep expertise, and be compensated for it not just on an hourly basis, or as a percentage of what a building costs, but according to the value of the services that you choose to solicit from us.

Associations must ensure that the collective consciousness of architects has a good deal of the mindset of the latter two. It will be these types of practices that ensure that the profession thrives in the future. And initiatives such as fee schedules, and in our opinion, fee databases, would postpone the development of a more constructive understanding of industry – held back by architects themselves and by their clients.

To ensure that architects continue to provide value to their customers, associations should provide resources, 'public goods,' for practices that want to learn more business concepts, and develop more business skills. Associations must also loosen regulations on the business of architecture, and set up regulatory regimes that allow for flexibility, so that firms can design themselves in ways that continue to provide value for clients.

**Entry of new members**

The percentage of architects per capita of 'architects' in Canada is sparse. And though there are important national differences in the use of title and the role of architects, Canada's position at the bottom of the pack of developed and developing countries reflects the stringent regulations on entry into the profession, and on the business of architecture in Canada.[26] It also signals that Canada and its architectural associations can support more licensed architects, or at least more other forms of members (those that may not meet the narrower definition of the title here could become members of associations).

When taking into consideration trends in the number of architects in Ontario as they relate to other economic variables, and by looking at historical rates of supply, our model predicts that the demand for licensed members will grow in the future and outstrip the supply. The ability to attract new licensed members is of paramount importance. In addition to the recurring theme of loosening restrictions on the business of architecture to allow companies to present more attractive value propositions to new recruits, membership rules should be revisited to draw in a wider base of members to associations, and to consider new 'pathways to the profession' for certain types of members to become licensed.

**Membership**

Several Canadian associations have broader membership categories than does Ontario, where there are Licensed Members, Honourary Members, Retired Members, Life Members, Intern Architects, Student Associates, and recently, 'Professional Technologists' (working title) recognized through the Ontario Association for Applied Architecture Sciences.

New categories could include: 'Associate' members of the OAA for college graduates, professors teaching programs in architecture, and those working under the direct supervision of an architect. It should be investigated whether this group contains enough people with appropriate skills and experience so that it would be worthwhile to design a program to fast-track them into full licensure, or at least to endow them with a designation and an ability to practice some architectural services in a limited way.

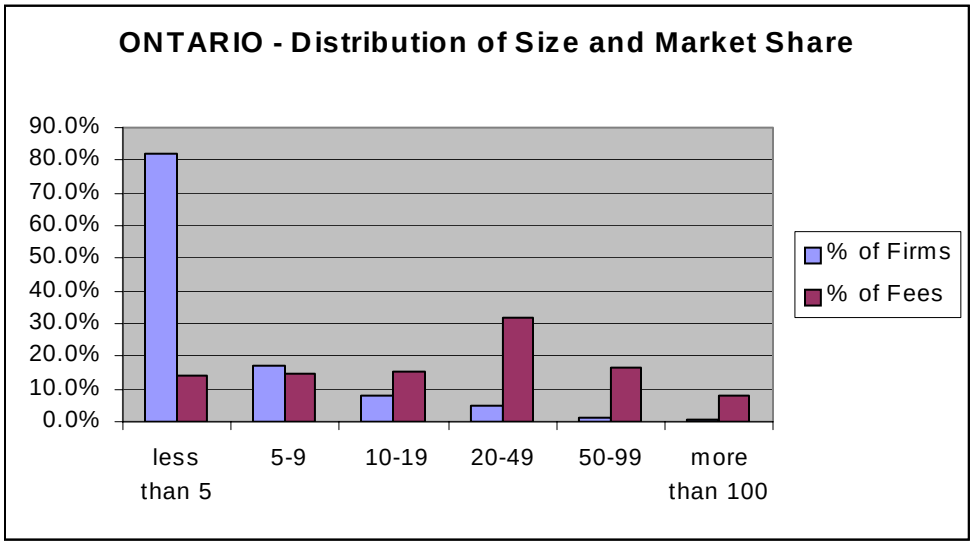
An 'Allied' member could come from a broader background, and include engineers, contractors, planners, and landscape architects to promote communication among all the members of the design and construction team. Other interested individuals in government, education, journalism, manufacturing, industry, and other fields allied to architecture would also be welcome.

[26] See *Appendix 1.7.1* and *1.7.2* for architect per capita figures.

The new classes of members would be encouraged to learn from architects and inform them about their own disciplines, professions, and concerns. New types of members would add bulk to lobbying efforts on legislative issues important to architects, and help fund advertising campaigns to elevate the public's awareness of the importance of design in the built environment. Opportunities could be presented to new members to serve as speakers and task force members. Existing OAA resources, including continuing education courses, on-line forums, e-bulletin content, and mini-conferences could be extended to new members. Additional resources in fields related to business development and marketing could be developed.

Changes to membership should not include accredited specializations. The complexity of projects in some fields certainly creates the need for deep skills, but it does seem to be a problem for clients to distinguish between proposals in these fields (i.e. healthcare). Unless there are considerable numbers of complaints arising in these fields (where the clients inability to assess credentials is dangerous), then it may not be necessary from a public interest point of view. If it would help local firms to secure foreign deals, then it should be given some thought. The effects of limiting the size of the market for accredited firms would likely be short-lived, as the usual suspects would likely appear on the scene at more or less the same time, and smaller or less specialized firms in the field may be unnecessarily frozen out from seeking work.

The constituency of members and practices is already very diverse, and as such, presents challenges to associations. Large practices are considerably fewer in number than sole practitioners/small practices, but generate the bulk of industry revenues (see graph below). And both large and small firms tend to feel that their needs are being overlooked in favour of the other. Such polarization has been occurring in Australia, the U.K., and in the U.S for several years, and has presented many association level challenges there as well.



In Ontario, the OAA should consider tailoring communication and activities to small and larger practices, perhaps through separate e-bulletins, or member areas on the site – whereby the different sizes of firms could be unabashedly supported, with relevant resources provided at their fingertips.

**Reducing red tape**

Ownership requirements should be liberalized. Access to funds from new investors (share capital) will allow firms to pursue strategies more successfully (and be on a level playing field with foreign firms), those wishing to exit the industry benefit from increased liquidity in market, and be more likely to recover value from their firms for retirement (or pursuing new interests), and the resulting continuity of firms would be in the interest of all.

Deleterious effects on the public interest have not been seen in other jurisdictions where the ownership requirements have changed. The complaints, discipline, and enforcement process should nonetheless be ready to pounce on transgressors when ownership changes are brought about.

Regulations relating to the types of services architects can provide, and to whom, should be eliminated – along with all restrictions on the naming of firms. In Ontario, non-architectural revenues should be given different treatment by the Pro-Demnity Insurance Company as well. A strong argument can be made for the elimination of premiums on such services.

The trend in architects owning an increasing number of related businesses should be considered.[27] Amalgamated practices have much potential for synergy - practices can share knowledge, management, less volatile revenues, and the cross-disciplinary mix could have interesting innovation potential.

If these other revenues can be separated and tracked by the Pro-Demnity Insurance Company, the OAA should set yearly targets for growth in this category. It can stand as a measure to indicate how much architects are beginning to collectively 'expand the pie' and move into new service areas.

**No recommended fee schedule or database**

Mandatory fee schedules do not reflect how much service a client needs and pays for on any given project. In some cases, they pay for more than what they get, and in many others, they get exactly nothing more than they pay for, whether or not it suits the project

[27] Between 1996 to 2002, the number of architects who have a stake in one or more companies increased from 15% to 30%. These companies include architectural firm, property development, Holding company, Facility management, Construction management, Property holding/management, Engineering, Construction, Miscellaneous

requirements.[28] In these cases, the diligent architect will get pinched by having to complete the project (and impress the valued client) with little or no flexibility asking for greater fees because 'the fee for full service' that is arbitrarily assigned to the unique project appears in the mind of the client to be cast in stone (or construction cost).

Many clients will welcome the separation of architectural fees from construction cost, as it is not an intuitive way of paying for services, and is not necessarily aligned with their goals for the building project. The building is a means to an end for the owner / builder and the value of architect can be as much about navigating them through a long, multi-disciplined process, as it is in doing tightly defined traditional services around construction. The degree of navigation will depend on the type of project, and the particular client. Fees can be set accordingly.

Fee schedules add unnecessary rigidity and trickery to the current process that architects in Ontario are currently succeeding. And even though many practitioners feel uncomfortable about bottom-up pricing, and do not use a client-centered, WBS (or similar approach)[29] in arriving at fees, about three-quarters of the time profits were within the range set at the beginning of the project. It is a good sign - developing competencies in setting fees and in thinking about designing fees in ways that clients will value - is key for the profession.

It is also the reason why a fee database that relies on the input of project information will not work. Not only because architects feel they are doing enough paperwork, but because their fees, and the process of setting good fees – which includes looking through historical costs and calculating contingencies, is a proprietary matter, and a source of competitive advantage.

If a 3rd party could gather information on project fees by sector, type of service, and type of engagement, it could be very valuable for individual practices to benchmark against. If the fees rolled up into a complete picture for an entire region, it would be an important resource for strategic planning for practices and associations. Firms could analyze trends that may influence staffing, marketing activities (to name a few), and associations could get a sense the increasing/decreasing importance of various sectors, and consider taking various types of action, such as designing different types of continuing education courses.

The downside to providing figures on a project-by-project basis is that they would be presented (or translated immediately by members and clients) into percentage of construction cost. The tendency to approach the pricing of services in this way, and the

[28] Architects clearly understood this situation in Ontario when they lobbied successfully for the removal of mandatory fee schedules imposed by their consultants in the early seventies.

[29] The Work Breakdown Structure (WBS) is a widely adopted approach to project management. The WBS divides projects into tasks and subtasks, and establishes relationships between them. The WBS is commonly used for costing and selling projects, as well. Through the MBA toolkit (and spreadsheets) and the Continuing Education program, the OAA has presented tools and techniques for using the WBS for the practice of architecture.

tendency to not think about value-based fees and differentiation strategies, would be reinforced.

The extent to which this is a problem is a matter of conjecture, but we feel that practices and clients are beginning to come around to this approach, and that the good that it will do for some individual firms who will use a fee database only as a strategic reference, will be outweighed by the number of practices who will be inclined to use it as a crutch.

**Quality assurance**

Raising the bar on quality issues is, as mentioned above, an extremely important endeavour for all associations. In Ontario, problems spotted by Practice Consultation Service (PCS) in the field must be fed back to develop best practices to be shared with other members through Practice Bulletins and Continuing Education programs. It is the responsibility of a self-regulating profession to develop and administer minimum quality standards.

The PCS should include an element – perhaps even at an additional cost - that allows firms to certify and market that they are quality assurance compliant. The PCS should also investigate providing consultation on adherence to ISO or other 3rd party guidelines for larger firms.

Differential insurance fees may be explored for firms that adhere to certain guidelines (i.e. appropriate communication, verification and risk management techniques).

**Sustainable design**

Associations should work with municipal governments and the provincial government to commit to increasing the profile of sustainable design. Developing, or maintaining a list of example projects that have successfully utilized elements of sustainable design in a cost effective manner will be valuable as reference tool for its members for the purpose of promoting or selling sustainable design.

In addition to purchasing additional materials and resources for sustainable design, associations should consider performing an evaluation of an assessment program such as LEED, to see how it fits within the context of sustainable design in their jurisdictions. Adaptations to LEED for the Canadian market are already in progress and it could be beneficial for the OAA and other associations to play a role in the development or adaptation of a widely used green performance evaluation program.

**Government**

As a client, the public sector can play a critical role in changing the way business is done in the construction industry. Current procurement practices in the public sector do not generally support or encourage innovation. The government should play an important role in raising the knowledge of all industry stakeholders so that new processes may be introduced, and that the whole life cost of a project is considered, not just the initial cost. Associations should press for better construction research funding at both university and federal laboratories. There is a need for an industry-wide research advisory body to be established with the mandate to co-ordinate all non-proprietary R&D, to ensure its relevance, to avoid both the duplication of work and knowledge gaps.

An 'Innovative Delivery Award' should be given to firms that break down boundaries between design, contractor, and manufacturer in project delivery. A summary of available R & D funding programs should be developed - including C2000, CBIP (Commercial Buildings Incentive Program - has already demonstrated that 25% savings in operating energy costs can be achieved with minimal capital cost increases.).

**Export**

Traditionally, there were tariff and non-tariff barriers to the Canadian market. These no longer exist, but mutual recognition, communication technologies, and the internationalization of clients is moving at a faster rate than most Canadian architects perceive.[30]

Associations must continue working with the RAIC and CACB to ensure that architects from other countries have the level of qualifications required, and that the process is transparent and not unnecessarily onerous. At the same time, work must be done to ensure that restrictions in other countries are liberalized – including those concerning citizenship or residency, on establishing a commercial presence, and on the repatriation of profits.

Associations should create an 'Exporters corner' on their websites which includes federal and provincial incentives, missions, and programs, like those of Department of Foreign Affairs and International Trade (DFAIT), the Export Development Corporation (EDC), the Canadian International Development Agency (CIDA), the Canadian Commercial Corporation (CCC), the Department of Finance and Industry Canada.

[30] For reasons discussed earlier, it is impossible to find precise balance of trade figures on exporting. But by way of example, according to OAA surveys, firms obtaining revenue from outside of their home province has only grown from 23% to 26% between 1996 and 2002, while licenses the OAA has granted under Inter Recognition with the US have grown at a much greater rate – from 1 in 1996, 7 in 1999, 13 in 2001, to 18 in 2002.

An award should be presented each year to 'Exporter of the year' award for small and large practice to encourage practices, and to provide leverage when attempting to establish credibility abroad.

**Advertising**

The current perception of architects as 'designers,' associated only with the legislated design of buildings, and cost of construction makes clients hesitant to spend money to try working with architects in new ways. Members themselves are encouraged to be the primary influencers in changing this perception. If a message is to be sent to the public, it should aim to counter this perception.[31]

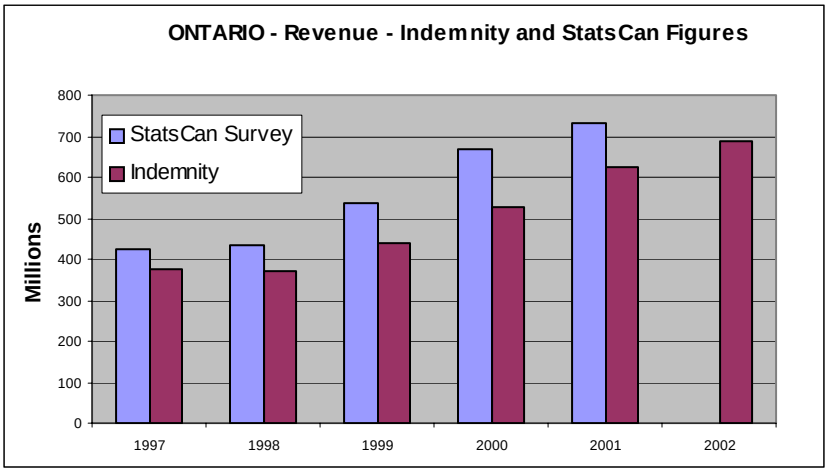
**A special note on the OAA**

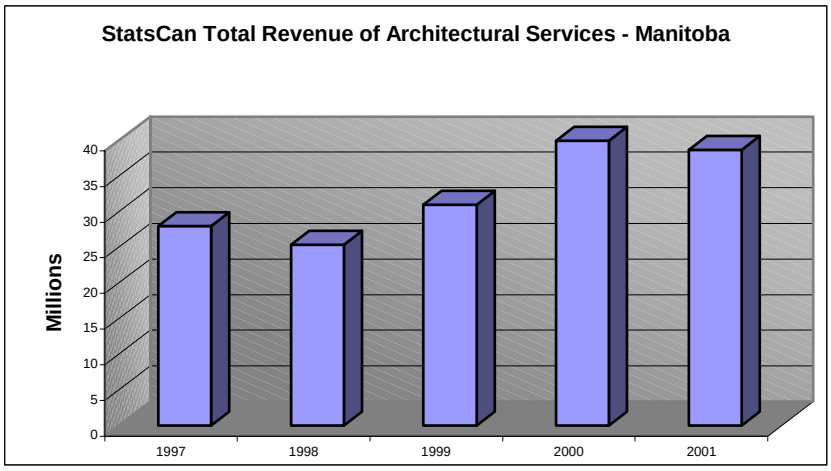
The OAA has done an excellent job in the recent upswing. Items have been systematically knocked off the list from the ambitious 1997 review, and new issues have been responded to with vigour, including issues surrounding the BRAGG report (MMAH exams) and the Limitations Act. An understanding of members has actively been sought through surveys and electronic communication. A comprehensive continuing education program has been developed to strengthen old skills and develop new ones. 'Public goods' like the MBA toolkit (with on-line spreadsheets) and the CHOP (with the RAIC) have been developed, along with the Practice Consultation Service to help traditional and non-traditional firms excel in the practice of architecture.

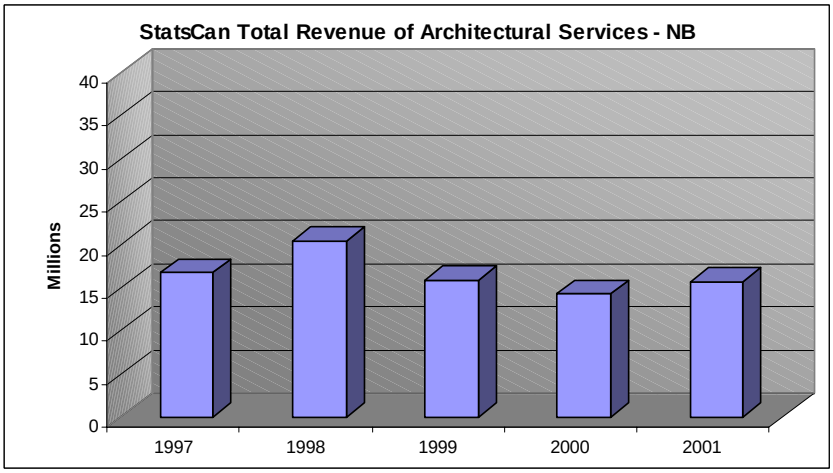
[31] In hundreds of sites visited during the course of conducting research, we were impressed by the visual appeal, and impressive catalogue of project portfolios on many sites, but were most surprised by how few sites had pictures of people – not to mention practice employees interacting with clients and users.

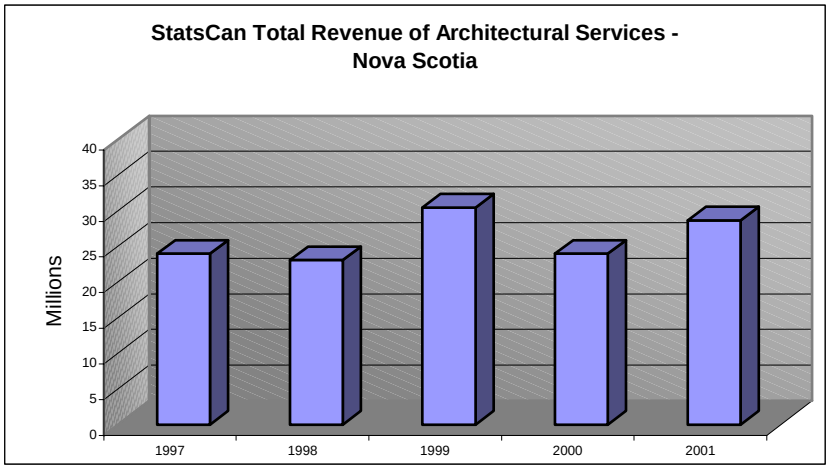
## Appendices

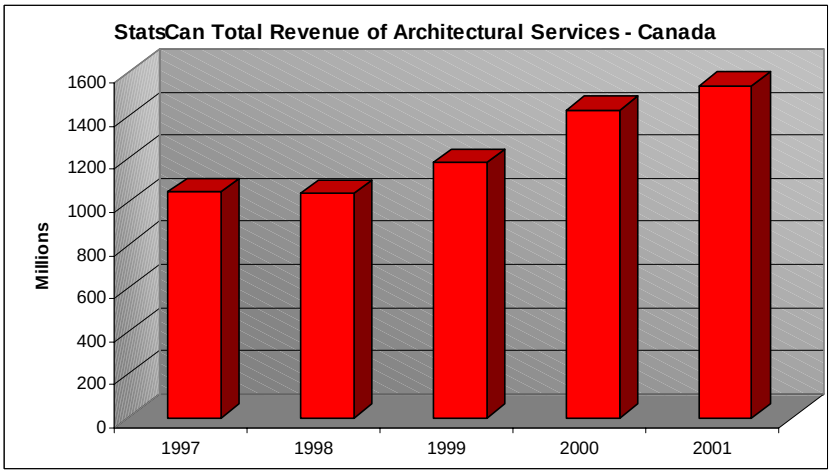
### Appendix 1.1 - Revenues – Ontario, Manitoba, NB, NS, and Canada



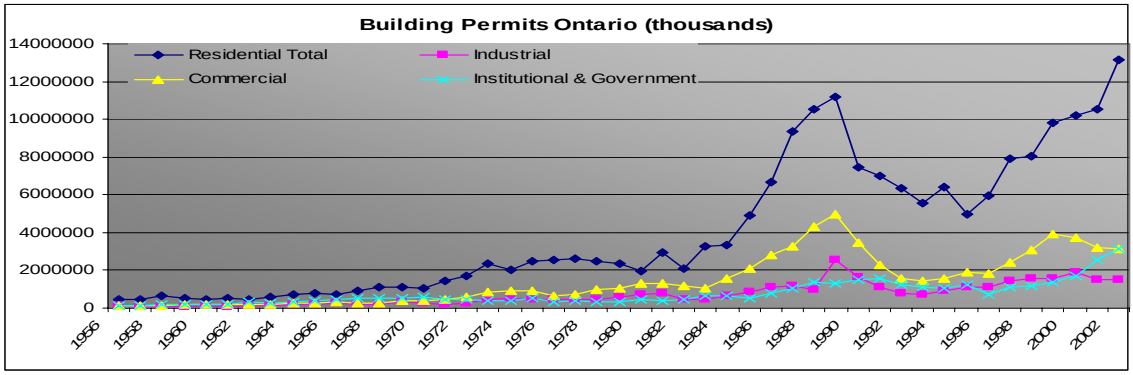



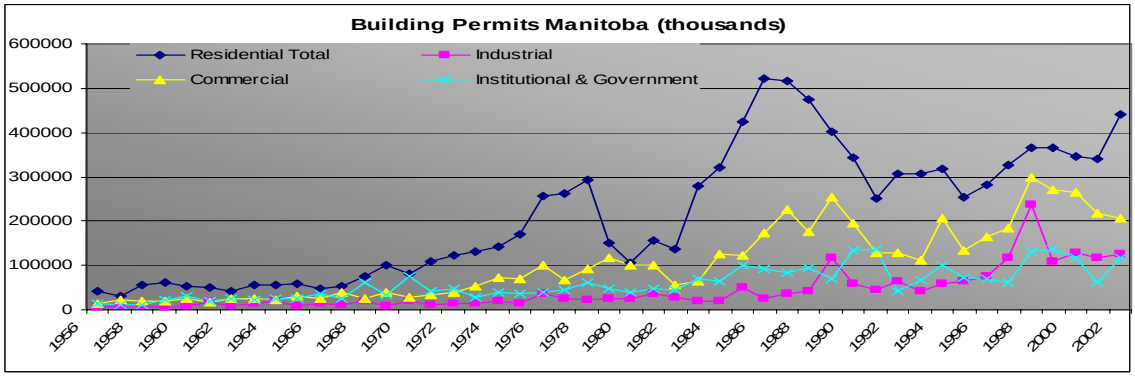



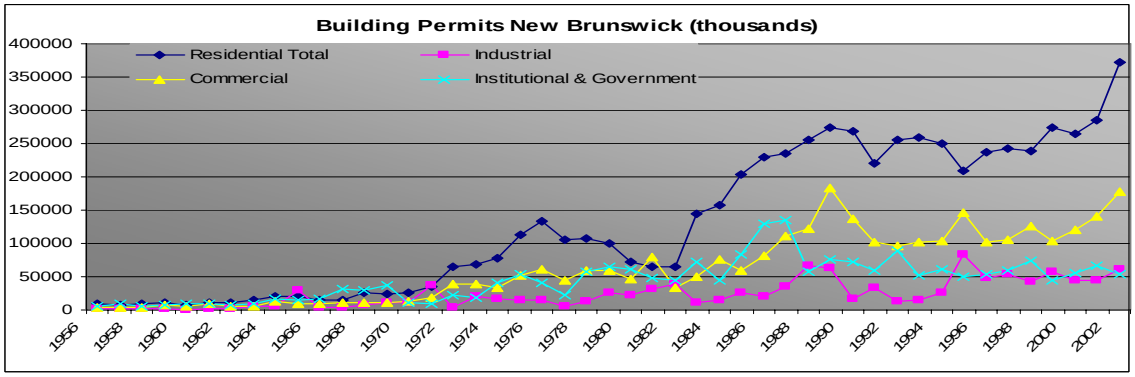

StatsCan Total Revenue of Architectural Services -
Nova Scotia
Millions
40
35
30
25
20
15
10
5
0
1997
1998
1999
2000
2001

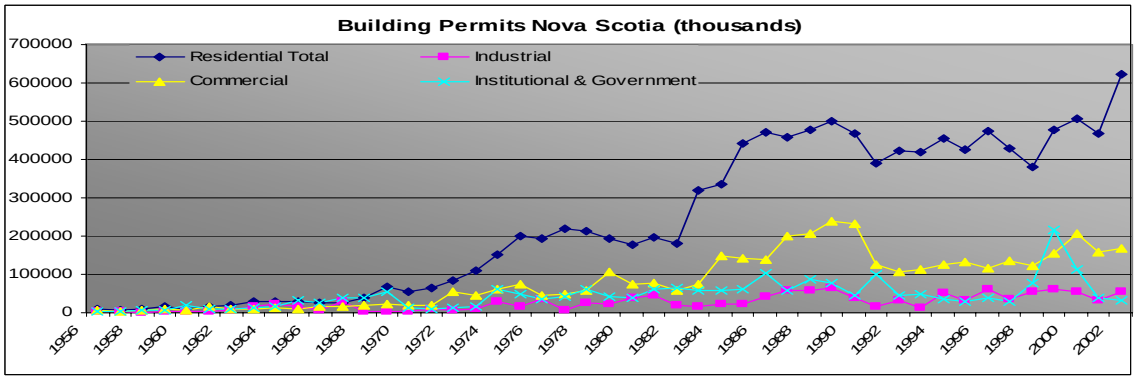

StatsCan Total Revenue of Architectural Services - Canada
Millions
1600
1400
1200
1000
800
600
400
200
0
1997
1998
1999
2000
2001

## Appendix 1.2 - Total Permits – Ontario, MB, NB, NS

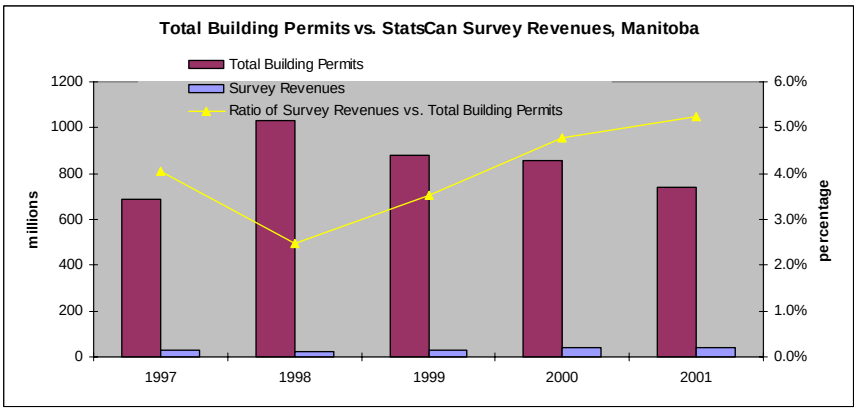


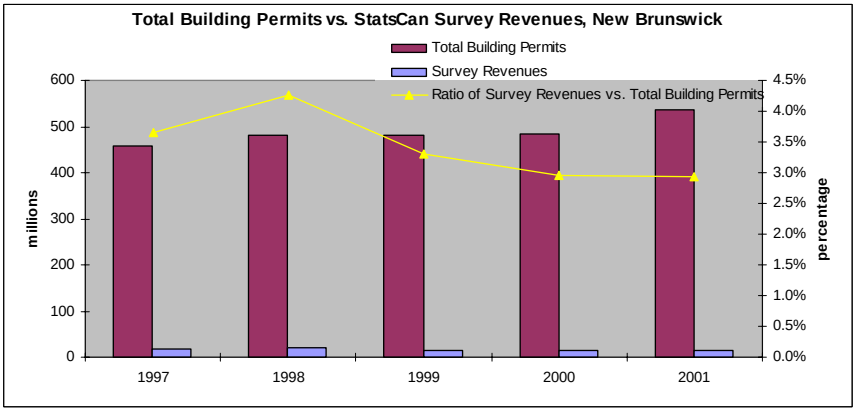



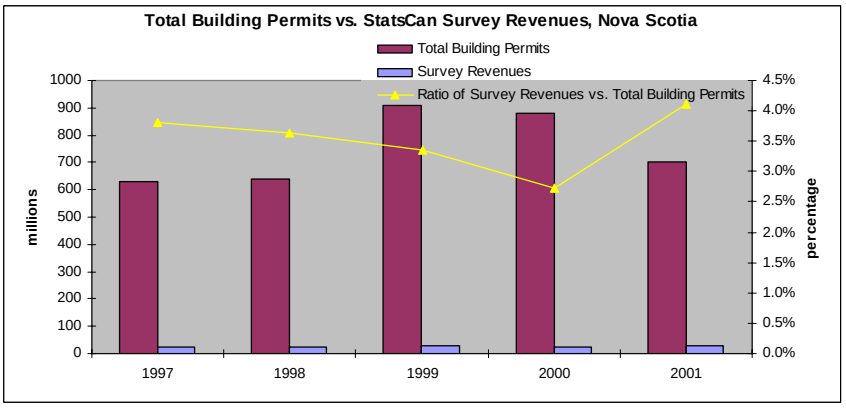



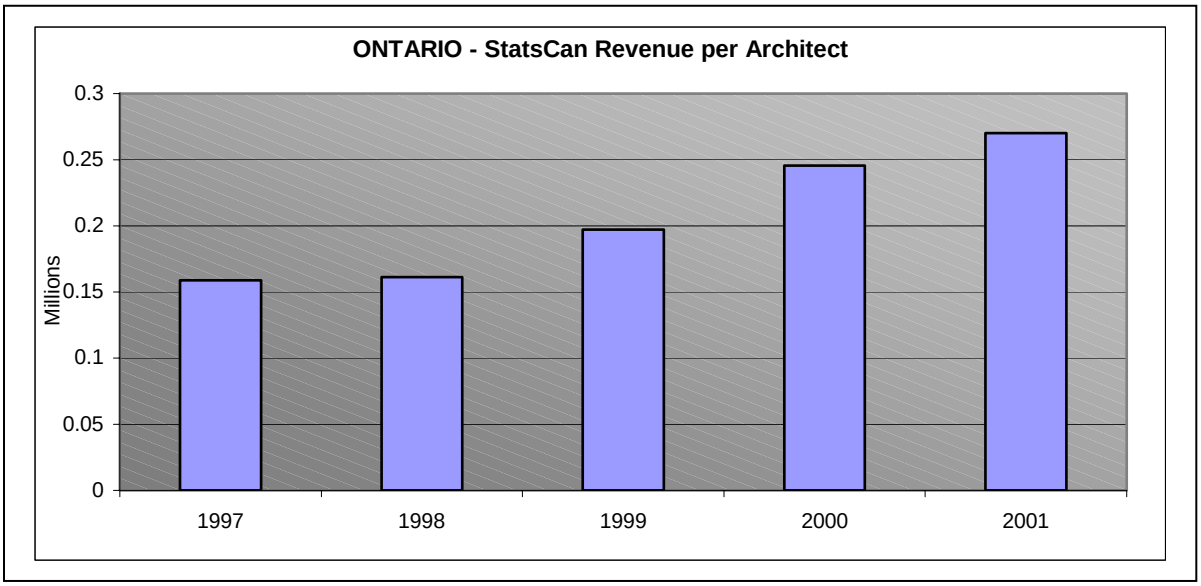
## Appendix 1.3 - Revenue to Total Permits – MB, NB, NS

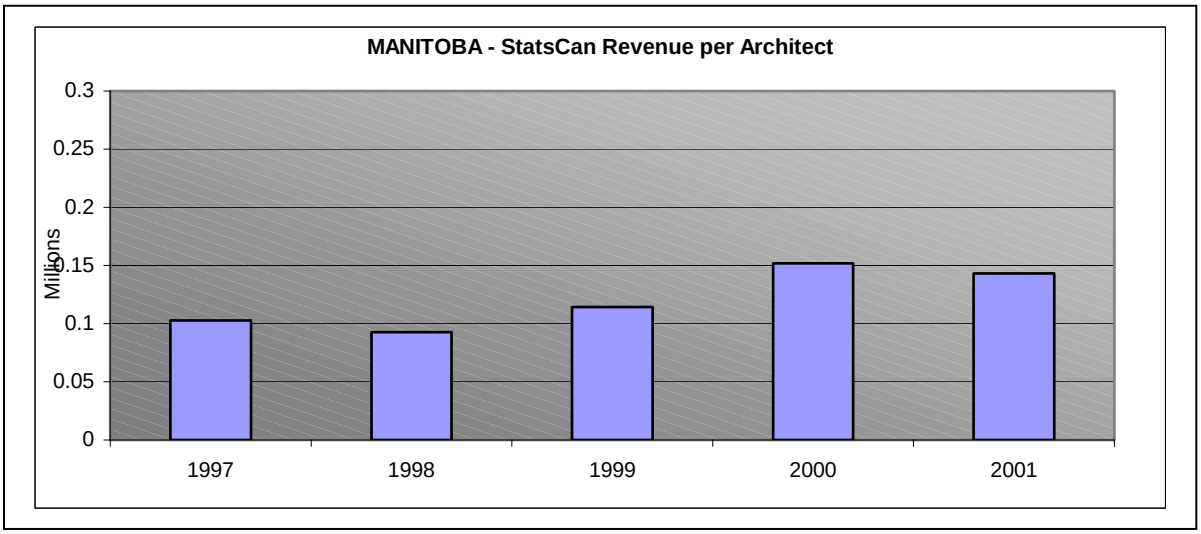


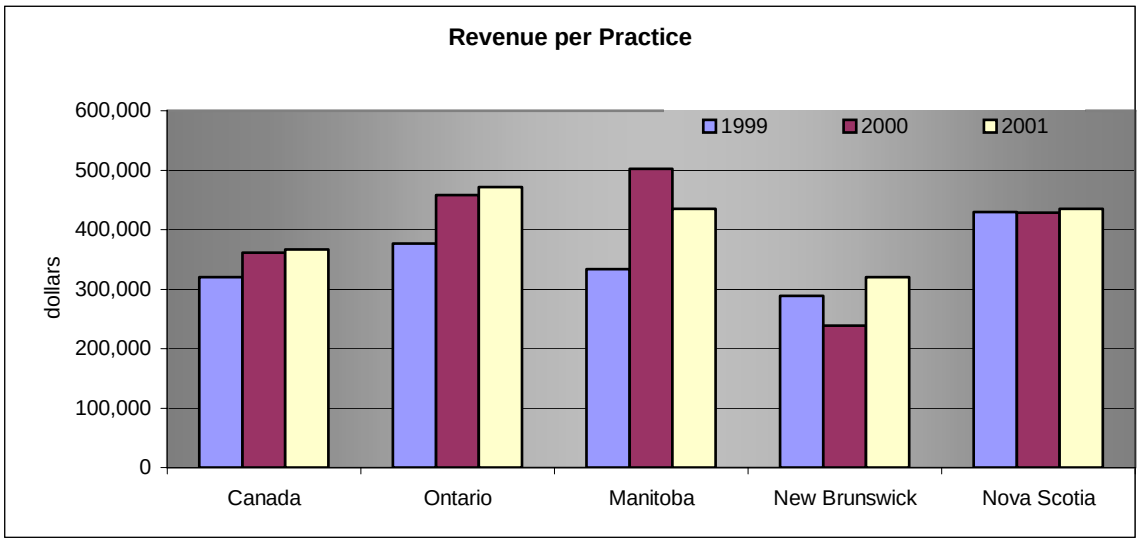



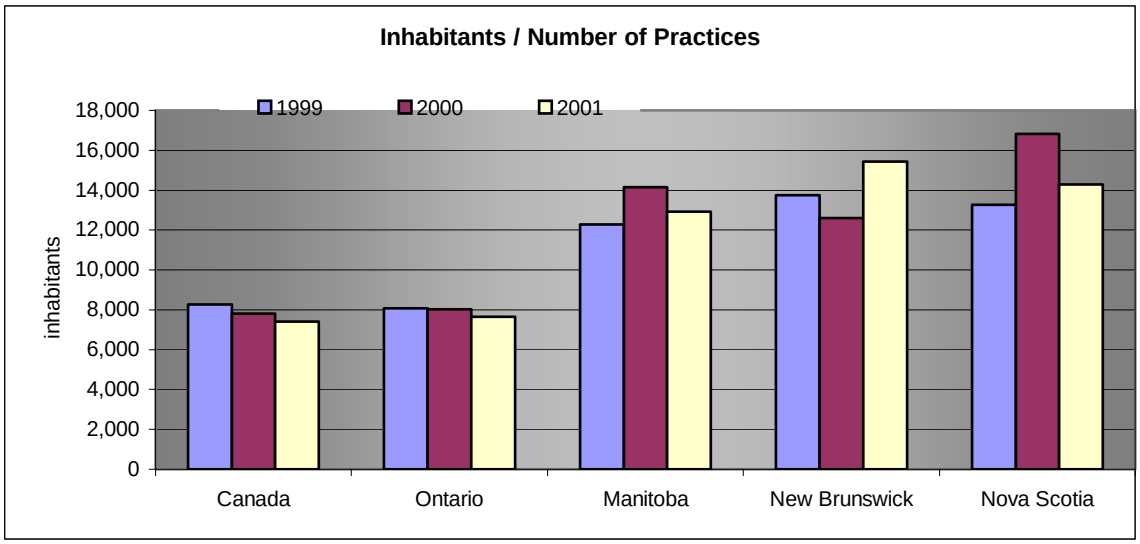
## Appendix 1.4 - Revenue per Architect – Ontario, Manitoba



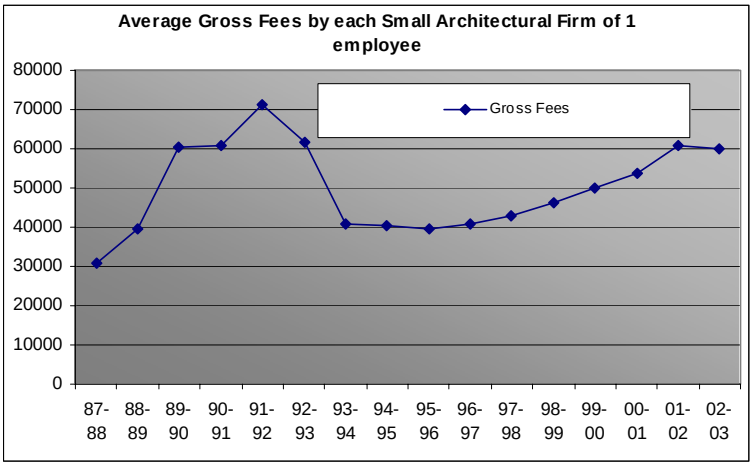
## Appendix 1.5 - Revenue, Inhabitant per Practice – Ontario, MB, NB, NS, Canada

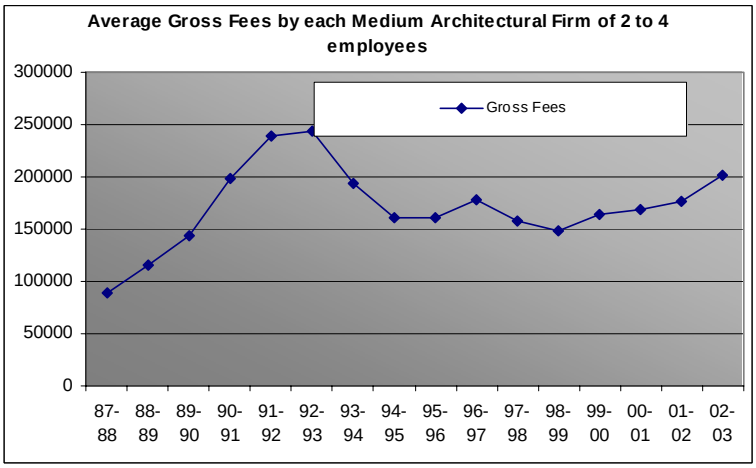


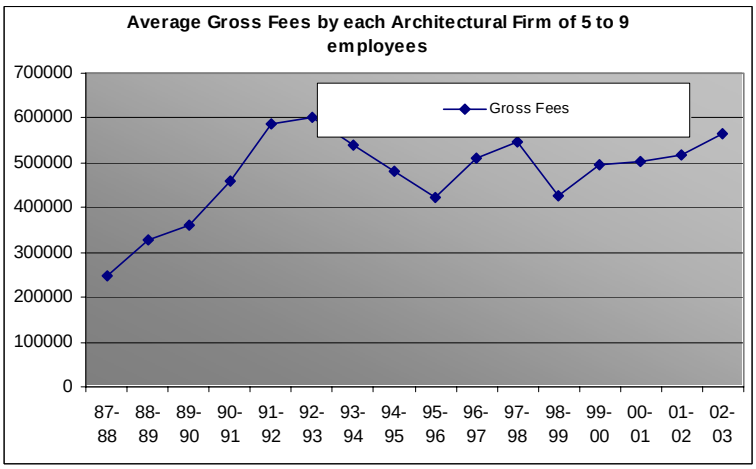



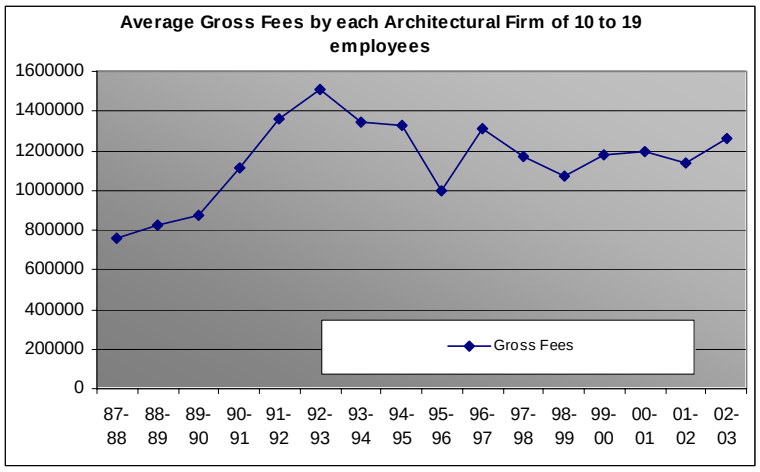
## Appendix 1.6 - Historical Revenue by Firm Size – Ontario

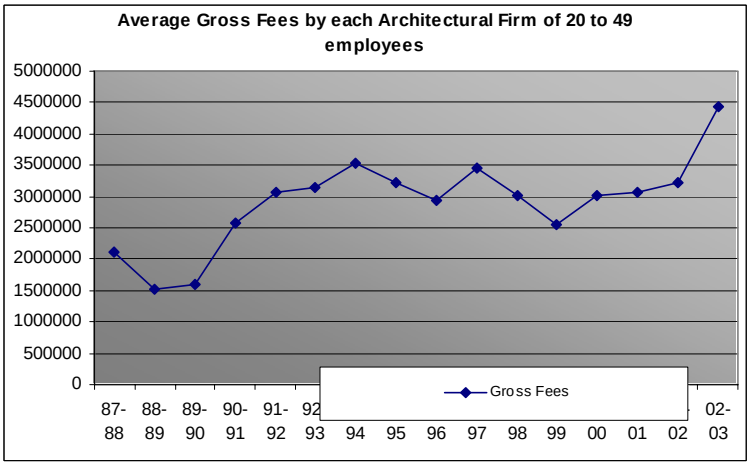
Indemnity Figures

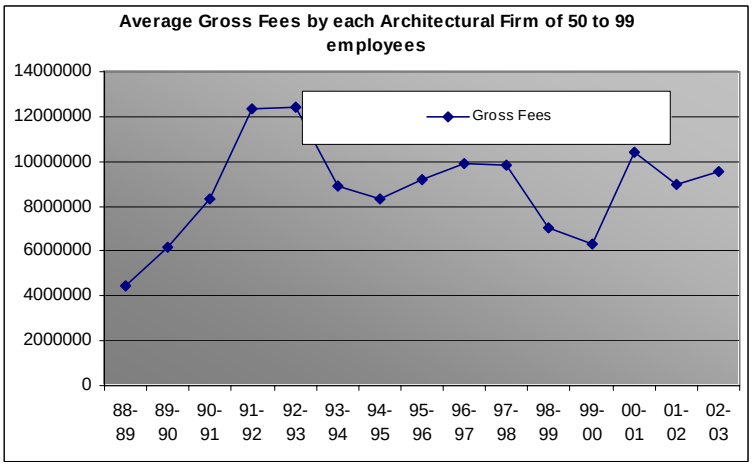


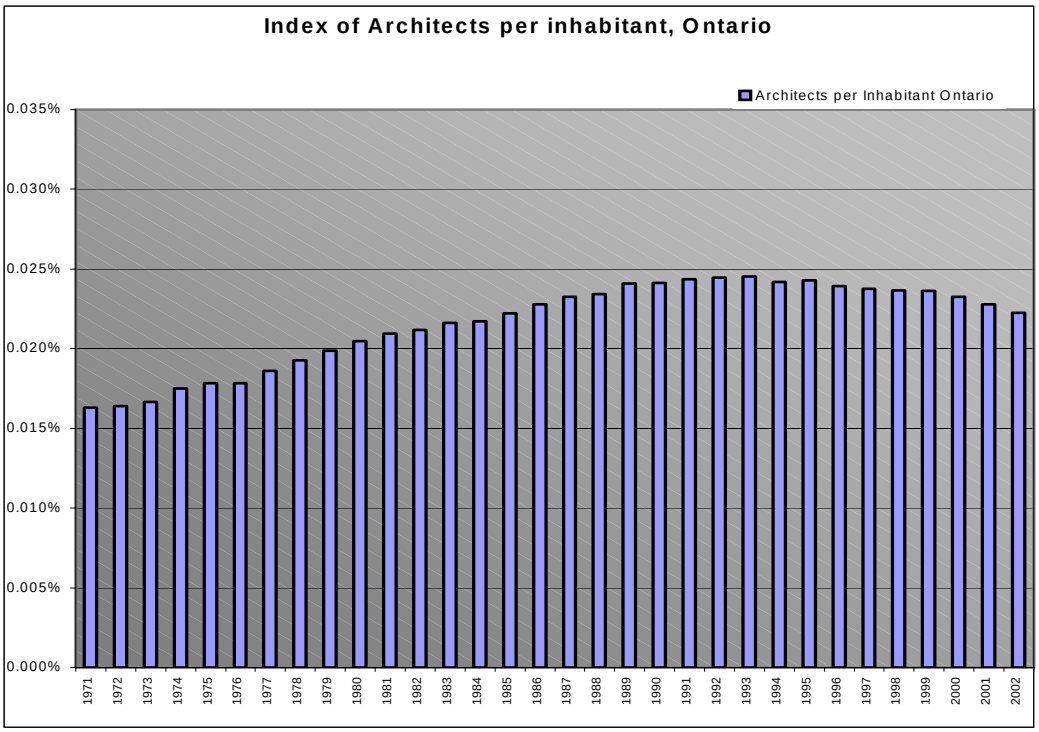



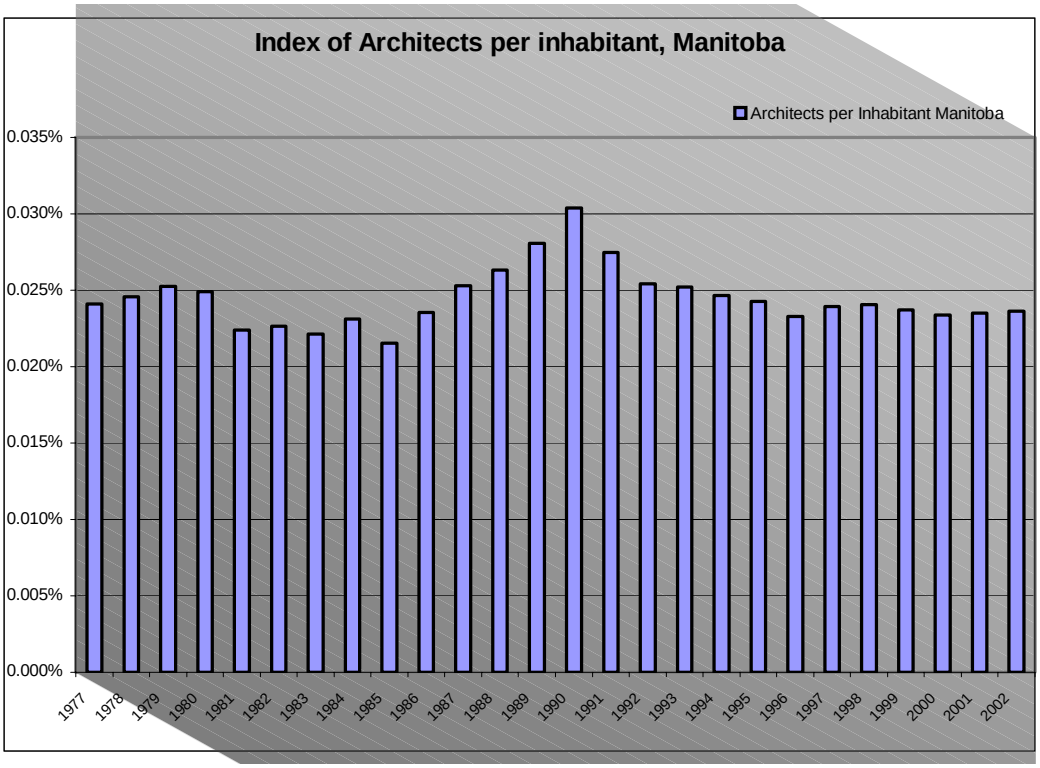

Average Gross Fees by each Architectural Firm of 10 to 19 employees
1600000
1400000
1200000
1000000
800000
600000
400000
200000
0
Gross Fees
87-88
88-89
89-90
90-91
91-92
92-93
93-94
94-95
95-96
96-97
97-98
98-99
99-00
00-01
01-02
02-03


Average Gross Fees by each Architectural Firm of 20 to 49 employees
5000000
4500000
4000000
3500000
3000000
2500000
2000000
1500000
1000000
500000
0
Gross Fees
87-88
88-89
89-90
90-91
91-92
92-93
93-94
94-95
95-96
96-97
97-98
98-99
99-00
00-01
01-02
02-03


Average Gross Fees by each Architectural Firm of 50 to 99 employees
14000000
12000000
10000000
8000000
6000000
4000000
2000000
0
Gross Fees
88-89
89-90
90-91
91-92
92-93
93-94
94-95
95-96
96-97
97-98
98-99
99-00
00-01
01-02
02-03

## Appendix 1.7.1- Architects per capita – Ontario, MB



**Appendix 1.7.2- Architect per capita – Country comparison**

| | Country | Architect/Capita |
|---|---|---|
| 1. | Japan | 0.2281% |
| 2. | Italy | 0.1726% |
| 3. | Greece | 0.1486% |
| 4. | Germany | 0.1334% |
| 5. | Denmark | 0.1127% |
| 6. | Iceland | 0.1125% |
| 7. | Belgium | 0.1089% |
| 8. | Portugal | 0.1036% |
| 9. | Israel | 0.0993% |
| 10. | Spain | 0.0889% |
| 11. | Norway | 0.0850% |
| 12. | Switzerland | 0.0697% |
| 13. | Mexico | 0.0586% |
| 14. | Finland | 0.0580% |
| 15. | Ireland | 0.0525% |
| 16. | U.K. | 0.0515% |
| 17. | Sweden | 0.0508% |
| 18. | Netherlands | 0.0504% |
| 19. | Australia | 0.0496% |
| 20. | Brazil | 0.0469% |
| 21. | France | 0.0447% |
| 22. | Turkey | 0.0431% |
| 23. | U.S.A. | 0.0388% |
| 24. | New Zealand | 0.0386% |
| 25. | Austria | 0.0384% |
| **26.** | **Canada** | **0.0260%** |
| 27. | Russia | 0.0080% |
| 28. | South Africa | 0.0062% |
| 29. | China | 0.0023% |

The statistics at left are a part of a broad study conducted by the UIA (International Union of Architects) in 2002. The focus of the study, and the numbers used in the analysis, are derived from those that legally conduct architectural services in their countries. The following description of architectural services is typical for the twenty-nine countries surveyed:

> Conceiving and design (coordination, management and control) of an architectural project. An architect works as a team leader as well as an individual. In many building projects the role of the architect is to coordinate a team of specialist consultants such as landscape architects, engineers, quantity surveyors, interior designers, builders and sub-contractors.

In three-quarters of the countries, architecture is a regulated profession with a recognized registration system and authority. In these countries, a national or state/provincial law regulates the profession.

In 21 of the 29 jurisdictions surveyed, someone other than an architect can legally provide some architectural services. The most common alternate providers are civil engineers. Architectural technologists also provide limited architectural services in over one third of the countries. In some countries, there were no restrictions on the provision of architectural services, but rather on the title of "architect" itself.

The complete UIA study can be found at: http://www.coac.net/internacional/praprof_w.htm. A summary of some of the key areas of the study follows below.

**Education**

With the exception of Turkey and Greece, all the countries surveyed had some form of educational standard. Just over half involved regular supervision by an independent body (such as the CACB in Canada). Almost uniformly, schools, faculties or departments of architecture are the sanctioned source for professional education in the discipline. Programs of architectural study range from four to six years, with the majority five years in length.

**Internship**
66% of countries have a compulsory internship program. Just over half of the countries that have a compulsory internship also require that the internship be structured and recorded. Where required, internships usually last 2-3 years.

**Examination**
Nearly half (48%) of the countries analyzed required students to submit to an exam administered by an authority external to their educational institution. Where this was required, the authority of choice was the national architectural association or institute.

**Continuing Professional Development**
Only Canada, New Zealand, the Peoples Republic of China, the U.S. and the U.K. have audited compulsory professional development programs (CPD). Professional development is also mandatory in Austria, Norway and the Netherlands, but is not audited in those countries. In all countries, professional development generally falls under the auspices of the architectural association or institute. Even in those countries where CPD is not mandatory, the professional association usually offers some CPD opportunities.

**Architect's Liability**
The typical period within which architects can be held liable is five to ten years. Some jurisdictions, like Australia, have opted for virtually unlimited liability; while countries like Sweden have limited liability to relatively short periods (two years).

**Insurance**
Insurance is not required by law in 75% of the countries surveyed. The absence of legal requirements is not indicative of a lack of insurance coverage. Rather, most architects insure their work through private insurance companies.

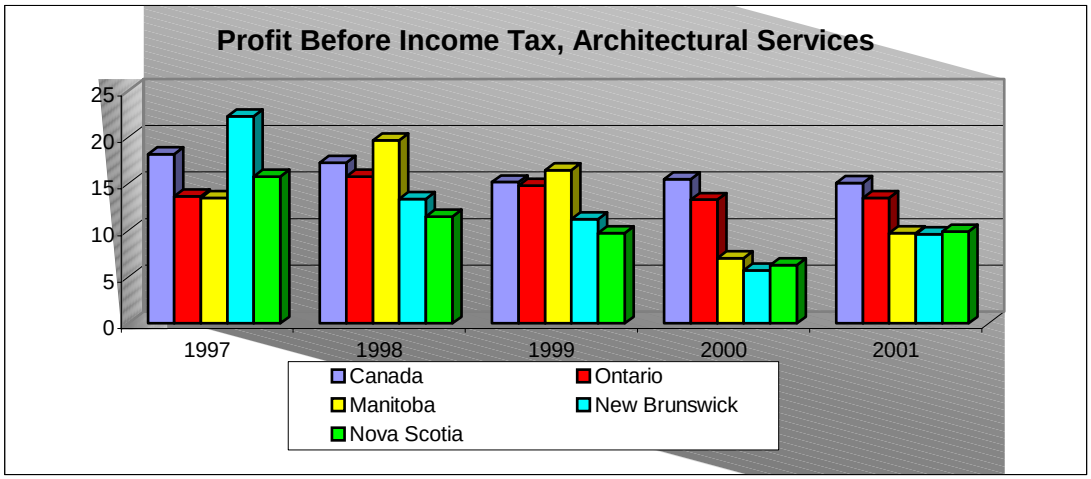
**Fees**
22 of the 29 countries under study had fee scales. Of these 22, five countries had compulsory fee scales, while in the other 17 they were recommended, but voluntary. The architectural institute or association, or the national government was responsible for designing the fee scales in each country. Like Canada, many of the countries that did not have fee scales were prohibited by law from creating them.

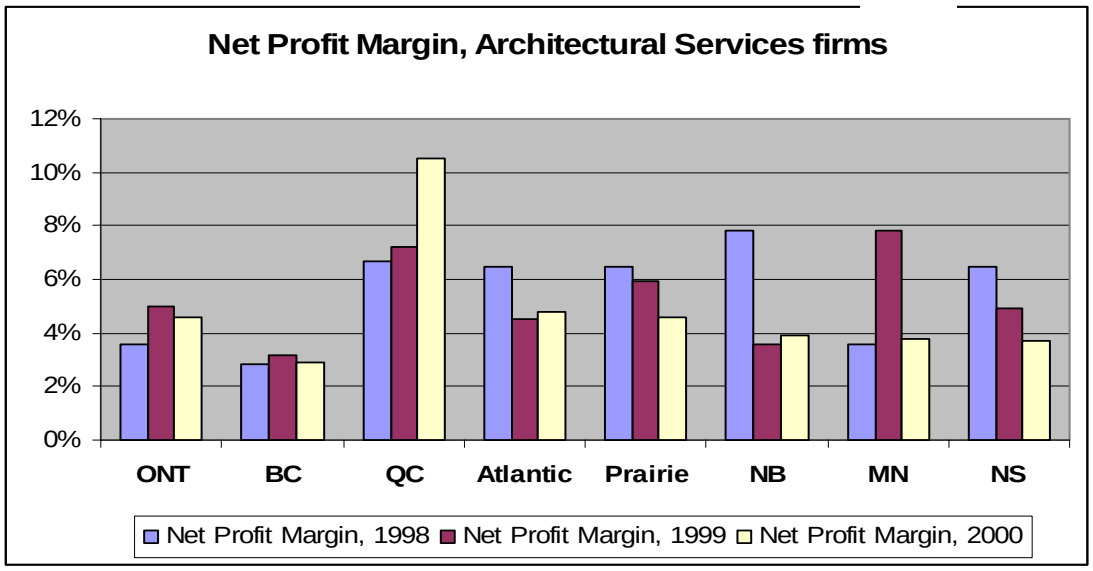
**Code of Ethics**
All countries studied had a code of ethics. This code was usually the responsibility of the professional association (the majority of cases) or the government department responsible for architects.

**Appendix 1.8 - Profitability – Ontario, MB, NB, NS, Canada**

Note that the information below comes from two sources, and represents two different measures (before and after tax). The first source is the annual, mandatory survey distributed to architects by StatsCan, and the second is from aggregate figures on tax claims from Canadian Customs and Revenue Agency (CCRA). Because they are from different sources, it does not means that in Ontario in 1998, for example, it can be assumed that tax brought the profitability down from roughly 15% (first graph) to below 4% (second graph).

After analyzing the statistical methods, and noting that architects often misreport or misunderstand 'profitability' when asked on surveys (this occurred in both the 1996 and 2002 surveys conducted by the OAA), we most often use the CCRA Business Register Data instead of Statistics Canada survey information in our analysis. See *Appendix 1.9* (next page) for definitions.



## Appendix 1.9 - Financial Ratios – Definitions, Figures

*Net profit margin*

This ratio measures the end result of operations for the year. It is an after-tax profit that is available to the owners of a business. Net profit margin is sometimes referred to as "net return on sales", because it is expressed as a percentage of sales. It tells how many cents of a revenue dollar remain in the net earnings after all expense deductions. It is a reflection of a firm's management ability to control the level of costs or expenses relative to sales revenue.

*Net profit margin = net profit / total operating revenue*

| | ON | MB | NB | NS * |
|---|---|---|---|---|
| 2000 | 4.6 | 3.8 | 3.9 | 3.7 |
| 1999 | 5.0 | 7.8 | 3.6 | 4.9 |
| 1998 | 3.6 | 3.6 | 7.8 | 6.5 |

*Receivable turnover*

This ratio provides a measure of the quality and relative size of accounts receivable. It indicates the effectiveness of a firm's credit policy by calculating how often accounts receivable are converted into cash during the year. The ratio divides the outstanding receivables figure at year-end into the year's sales.

*Receivable turnover = sales of goods & services / accounts receivable*

| | ON | MB | NB | NS |
|---|---|---|---|---|
| 2000 | 6.44 | 7.00 | 5.16 | 4.59 |
| 1999 | 6.06 | 6.20 | 7.39 | 4.49 |
| 1998 | 7.34 | ... | ... | ... |

*Working capital*

This ratio examines the relationship of current assets to current liabilities. It measures the ability to pay short-term debts easily when they become due.

*Working capital = current assets / current liabilities*

| | ON | MB | NB | NS |
|---|---|---|---|---|
| 2000 | 1.34 | 0.78 | 1.03 | 1.59 |
| 1999 | 1.35 | 1.60 | 1.08 | 1.36 |
| 1998 | 1.23 | 1.21 | 1.06 | 1.45 |

* Figures are provided for architectural practices with less than five million in revenue. The source is Statistics' Canada Business Register data. Information for some years is unavailable.

*Debt to equity*

This ratio examines the relationship of debt (loans, bonds, debentures) to shareholders' equity. It compares the relative size of debt to resources invested by the owners. It indicates the extent to which a firm relies on borrowed funds to finance its operations. Firms that rely heavily on borrowed funds are said to be highly leveraged.

*Debt to equity = (short-term loans + long-term loans and debt) / shareholders' equity*

| | ON | MB | NB | NS |
|---|---|---|---|---|
| 2000 | 0.15 | 0.08 | 0.19 | 0.13 |
| 1999 | 0.17 | 0.20 | 0.28 | 0.15 |
| 1998 | 0.14 | 0.05 | 0.28 | 0.09 |

*Liabilities to assets*

This ratio indicates the relationship of liabilities to assets. It tells what portion of the assets is financed by debt and other liabilities.

*Liabilities to assets = total liabilities / total assets*

| | ON | MB | NB | NS |
|---|---|---|---|---|
| 2000 | 0.70 | 0.83 | 0.72 | 0.66 |
| 1999 | 0.68 | 0.71 | 0.68 | 0.55 |
| 1998 | 0.74 | 0.86 | 0.64 | 0.62 |

*Interest coverage*

This ratio measures the ability to pay interest charges on debt and to protect creditors from interest payment default. The ratio indicates the number of dollars of earnings available to pay interest for every dollar of interest expense incurred.

*Interest coverage = (pretax profit + interest expense) / interest expense*

| | ON | MB | NB | NS |
|---|---|---|---|---|
| 2000 | 5.66 | ... | 6.00 | 5.75 |
| 1999 | 5.00 | ... | ... | ... |
| 1998 | 5.81 | ... | 7.56 | 10.00 |

*Sales - year over year % change*

This ratio measures the growth rate for a matched group of firms in each industry. It is based on firms that are found in the database for both the current year and the previous year. Firms with percentage changes of over 100% are filtered out of the industry calculation.

*Sales, annual growth rate = (Sales current yr - Sales previous yr) / Sales previous yr*

| | ONT | MB | NB | NS |
|---|---|---|---|---|
| 1998 to 1999 | 6.0 | 20.1 | -11.8 | 12.6 |
| 1999 to 2000 | 16.1 | 9.1 | -2.5 | 7.6 |

## Appendix 1.10 - Normalized Balance Sheet - Ontario

The following balance sheet figures from StatsCan have been normalized (expressed as a percentage) for comparison purposes. A balance sheet is normalized by dividing each line item by total assets or by total liabilities and shareholders' equity.

| | COMPANIES WITH LESS THAN $5 Million in REVENUE | | | COMPANIES WITH MORE THAN $5 Million in REVENUE | | |
|---|---|---|---|---|---|---|
| | 2000 | 1999 | 1998 | 2000 | 1999 | 1998 |
| **Assets** | % | % | % | % | % | % |
| Cash | 19.5 | 20.2 | 10.1 | 8.1 | 8.4 | 6.7 |
| Accounts receivable | 29.8 | 32.5 | 26.8 | 35.1 | 39.1 | 15.7 |
| Inventory | 3.7 | 5.3 | 3.4 | 14.3 | 14.3 | 21.4 |
| Capital assets | 13.9 | 13.3 | 17.5 | 12.3 | 13.9 | 47.1 |
| Other assets | 2.0 | 2.4 | 2.7 | 15.5 | 14.7 | 3.0 |
| **Total operating assets** | **68.9** | **73.6** | **60.4** | **85.3** | **90.4** | **93.8** |
| Investments and accounts with affiliates | 17.7 | 17.9 | 18.9 | 14.3 | 9.5 | 5.9 |
| Portfolio investments and loans with non-affiliates | 13.4 | 8.5 | 20.7 | 0.3 | 0.2 | 0.3 |
| **Total assets** | **100.0** | **100.0** | **100.0** | **100.0** | **100.0** | **100.0** |
| **Liabilities** | | | | | | |
| Accounts payable | 27.9 | 29.2 | 27.3 | 35.4 | 36.4 | 26.9 |
| Borrowing: | | | | | | |
| Banks | 6.3 | 7.8 | 9.5 | 7.6 | 5.3 | 5.7 |
| Short term paper | - | - | 0.5 | 0.0 | 0.2 | 11.5 |
| Mortgages | 3.0 | 3.5 | 5.7 | 1.9 | 1.7 | 0.4 |
| Bonds | - | - | - | 2.3 | 1.8 | 1.1 |
| Other loans | 1.1 | 0.6 | 2.0 | 1.1 | 1.4 | 2.2 |
| Amount owing to affiliates | 19.3 | 17.7 | 17.8 | 4.5 | 5.5 | 13.4 |
| Other liabilities | 8.6 | 6.5 | 8.2 | 16.8 | 14.4 | 9.1 |
| Deferred income tax | 0.5 | 0.2 | 0.1 | 0.9 | 1.5 | 3.9 |
| **Total liabilities** | **66.6** | **65.6** | **71.2** | **70.5** | **68.1** | **74.1** |
| **Shareholders' equity** | | | | | | |
| Share capital | 1.3 | 1.4 | 1.5 | 17.4 | 18.2 | 20.0 |
| Retained earnings | 31.4 | 32.2 | 27.0 | 11.0 | 13.3 | 5.7 |
| Other surplus | 0.7 | 0.8 | 0.3 | 1.1 | 0.4 | 0.1 |
| **Total shareholders' equity** | **33.4** | **34.4** | **28.8** | **29.5** | **31.9** | **25.9** |
| **Total liabilities and shareholders' equity** | **100.0** | **100.0** | **100.0** | **100.0** | **100.0** | **100.0** |
| Current assets - % of total assets | 68.4 | 72.4 | 72.2 | 59.9 | 63.7 | 44.6 |
| Current liabilities - % of total assets | 50.8 | 52.2 | 53.6 | 45.0 | 44.2 | 42.5 |

**Appendix 1.11 - Financial Comparison to other industries**

In addition to the market forces that determine the profitability of a practice, the efficient structure of assets and liabilities can significantly improve financial performance. In order to identify possible avenues of improvement in the performance of architectural practices, the balance sheet structure of a typical firm with revenues under $5 million for the years 1998-2000 is used, and contrasted with the asset/liability structure of Canadian services firms in general.

In comparison with average Canadian services firm, the balance sheet of an architectural practice has the following characteristics:

*Assets side*

- Higher percentage of Cash on hand
- Higher level of Account Receivables
- Higher level of Accounts with Affiliates
- Significantly higher percentage of Current Assets vs. Total

*Liability side*

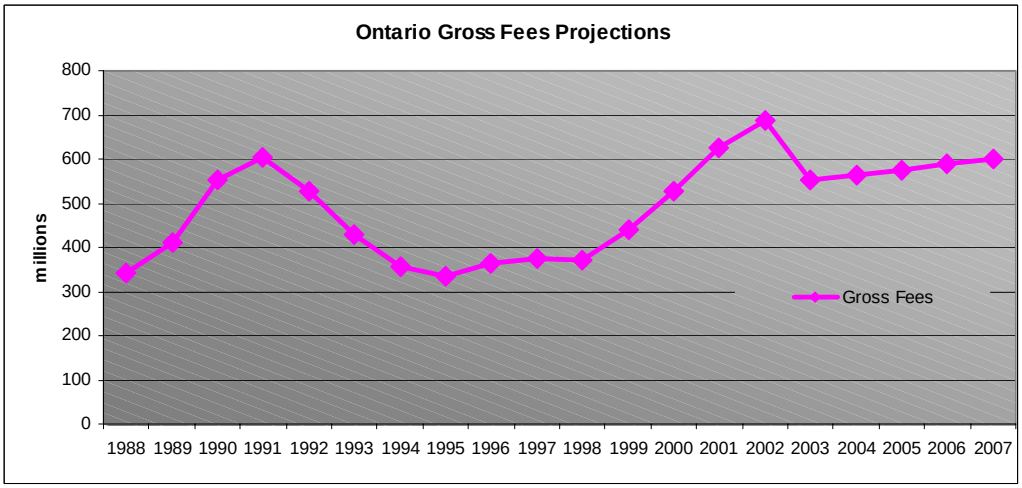
- Higher level of Account Payables
- Lower levels of bank and other borrowing
- Lower level of Accounts owing to Affiliates
- Lower level of Liabilities in general
- Significantly lower share capital

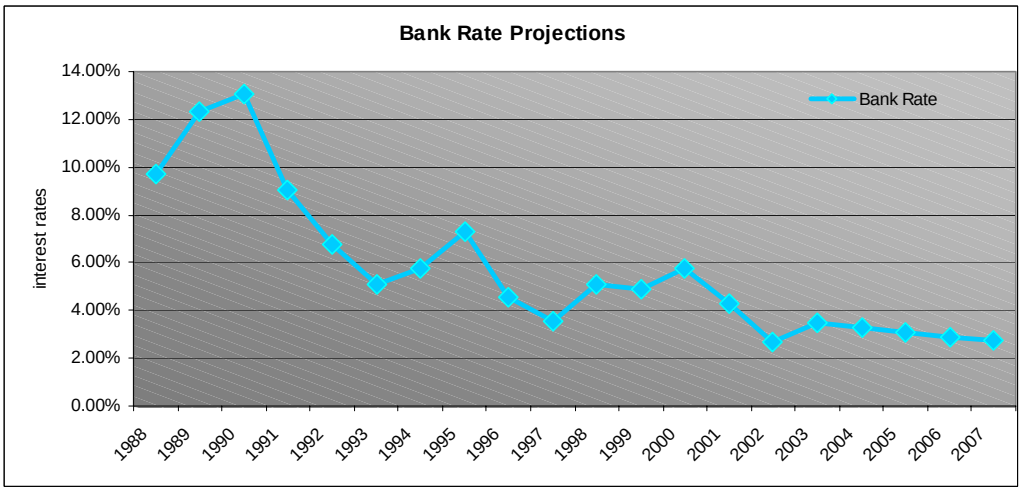
On the performance side, architectural practices have:

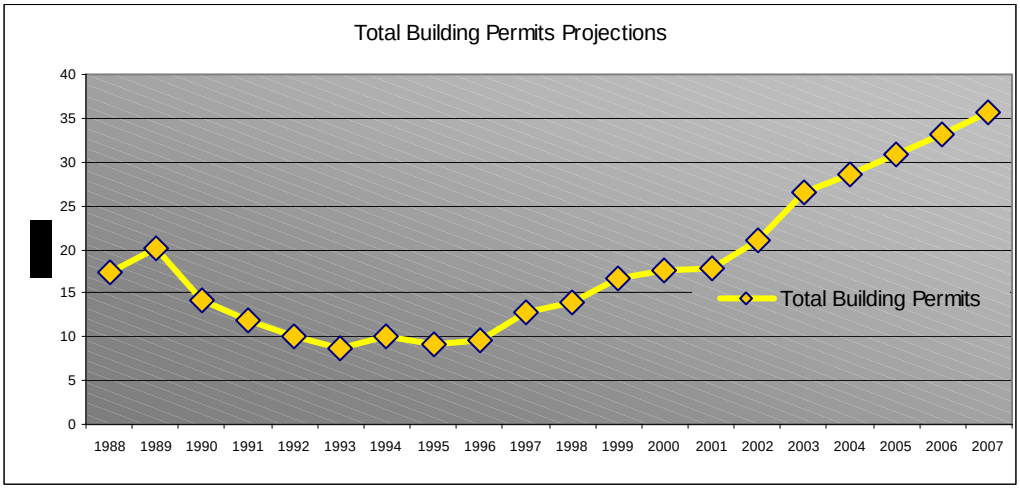
- Lower turnover of accounts receivable
- Higher interest coverage ratios
- Higher, on average, net revenues to net operating asset ratios
- Higher, on average, liabilities to assets ratios
- Higher absolute worth of Account Receivables and Account Payables
- Higher total operating assets (due to higher Cash and Accounts Receivable, even with lower capital assets)
- Lower integration with affiliates, i.e., lower amounts owing as well as invested with affiliates
- Higher working capital (i.e., difference between Account Receivables and Account Payables)

More efficient use of leverage, i.e. debt, could allow practices to pursue new strategies to secure greater profit – strategies such as increased marketing efforts, the addition of new technology, the addition of strategic hires, or the pursuit of international opportunities. In situations where appropriate strategies are temporarily scarce or otherwise undesirable, a more efficient financial structure, with lower working capital turnover and cash reserves, may allow practices to decrease debt and increase profitability by decreasing interest related expenses.

## Appendix 1.12 - Model Variables Projection – Ontario – Gross Fees, Bank Rate, Permits



**Appendix 2.1 - Partners Program (University of Manitoba)**

The Partners Program is a unique initiative by the University of Manitoba's Faculty of Architecture. The program puts the students in touch with the profession, the community and the industry as a whole, including construction and manufacturing. The director of the program pointed out that "in general, for professional offices, it is difficult to do innovative construction work; they don't have resources and people". The program is a win-win situation for all the parties involved. Networking through the Partners Program offers benefits for all parties including the university, the profession and industry as follows:

- Student; the program brings the students a real sense of the profession and the industry. They gain access to community projects in addition to new technologies and recruitment opportunities within the industry.
- Industry and profession; for a $1,000 membership fee they gain access to the university's research facilities and expertise to pursue R&D initiatives in areas useful to the industry and the profession.
- Alumni are associated with the program for free; a considerable advantage for alumni at small firms.
- School; gains access to cutting-edge industry and business resources. Moreover, it is an opportunity to promote research within the school and attract professors and professionals interested in innovation. Finally, it attracts funding from various organizations. National foundations and industry associations are interested and have invested in the program including:
    1. Canada Foundation for Innovation
    2. The Canadian Masonry Association has a long term (5 year) renewable commitment
    3. The Canadian Cement Association is pursuing a similar engagement if not already engaged

Furthermore, the director described the various projects the program is currently undertaking and which illustrate the points mentioned above. The main project discussed was C.A.S.T. (Centre for Architectural Structures and Technology) The project received funding from Canada Innovation Foundation, the province, the university and industry partners. It features the innovation of Prof. Mark West's flexible fabric framework for concrete structures. The process uses less concrete, which is more aesthetically pleasing and economical. As a result the project received the support from the concrete industry and the interest of a few well-known firms in the United States and Europe. Moreover, the building "institutes a new approach to teaching building technology where the study of design, building technology, materials and construction are all approached with an emphasis on both physical as well as intellectual knowledge".[32]

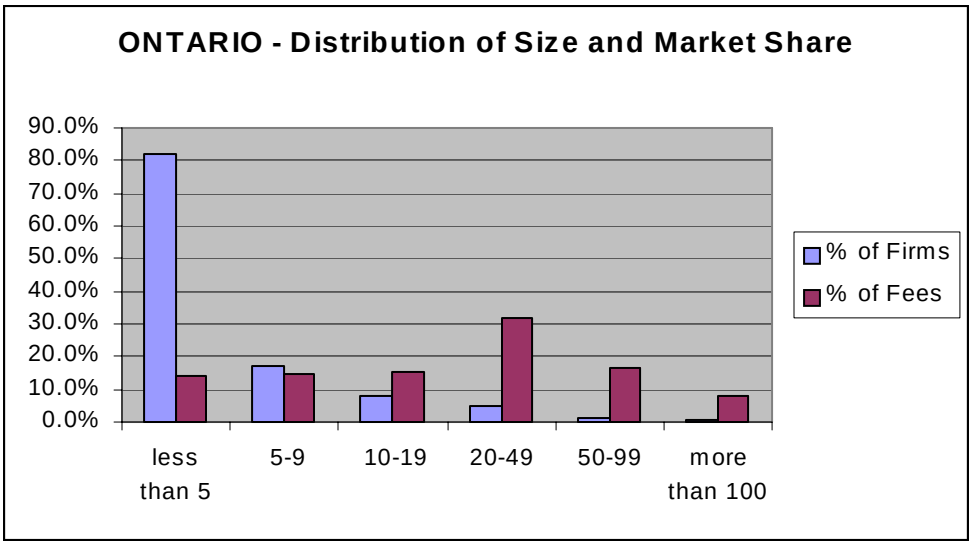
[32] http://www.umanitoba.ca/faculties/architecture/cast/CASTonline.html

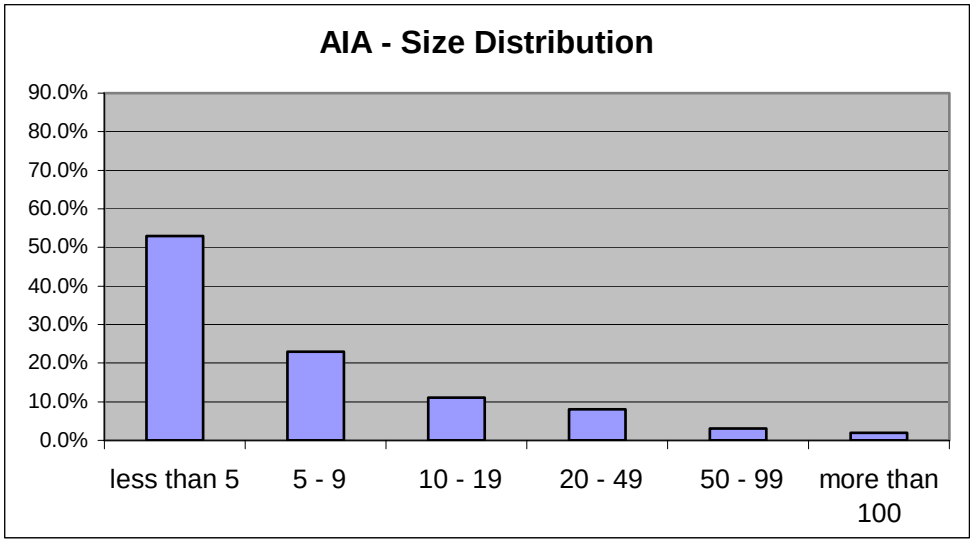
All of the structural elements and the various systems within the building are left exposed, making the building itself a hands-on educational tool and rich research material for both architecture and engineering students under one roof. As a result, the C.A.S.T. building is being used by the Masonry Association and the Air Barrier Association to demonstrate how their respective systems are employed. Finally, C.A.S.T. brings together Engineers and the faculty of architecture under one roof. Both use the building for research and teaching. In addition, at C.A.S.T. a new Post Professional PhD program is being offered for both engineers and architects. The program offers hands-on capabilities in construction methods mostly specific to C.A.S.T. but could be for other similar projects.

The director described the program's networking initiative through 'Research Dinners.' The dinners are held every month for six month and hosted by the program. Faculty members present ideas and findings to invited guests. The events cover broad range of topics from housing to HVAC. The dinners attract key players in government, industry, community and profession as well as faculty from across the university. "Contacts from a 1998 research dinner series were the industry partners who supported our award winning Canada Foundation for Innovation grant to build the C.A.S.T. building."[33]

[33] http://www.arch.umanitoba.ca/partners/pages/dinners.html

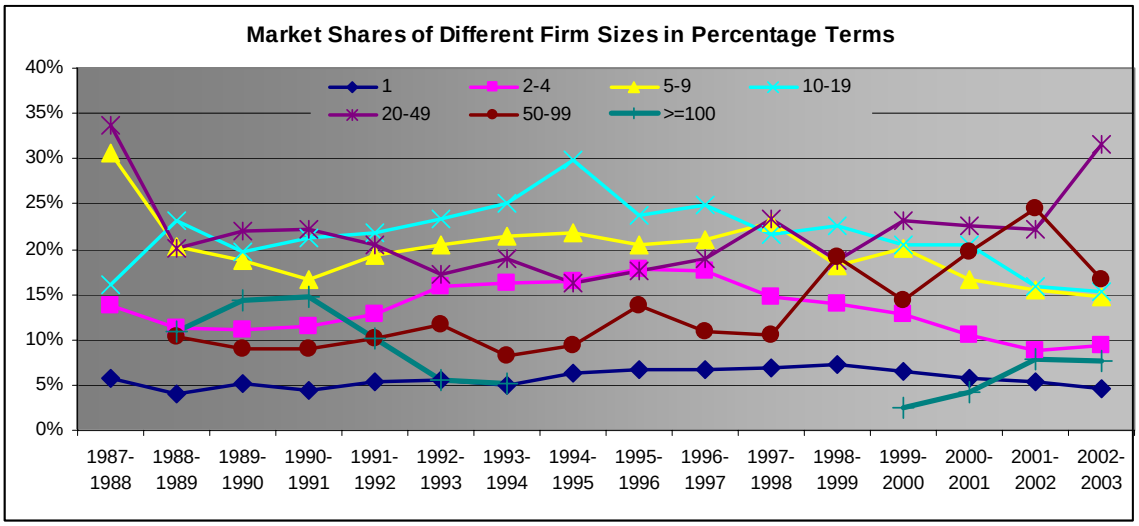
## Appendix 3.1 - Firm Size Distribution – OAA, AIA



Appendix 3.2 - Historical Market Share – Ontario

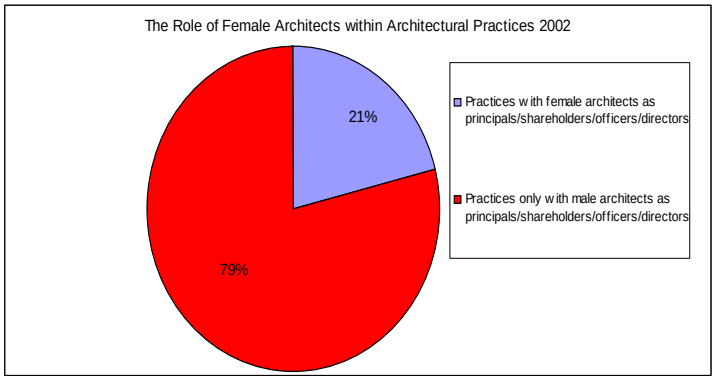
In Ontario, the market share for sole proprietorships has remained around the same level (5%) since 1987. It increased slightly by the end of the 1990's to a level of 7%, but has not experienced any significant increases or decreases since. Practices with two to nineteen employees have all seen decreases - so even when the market in general is growing, it may not necessarily feel that way to these practices. In general, it seems that all the categories are returning to similar levels as at the end of the 1980's.

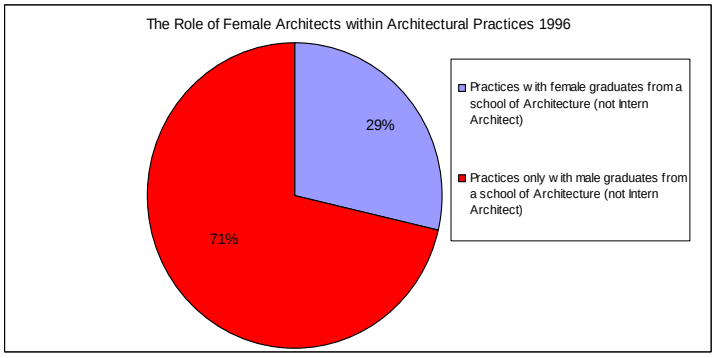


## Appendix 4.1 - Women in Architectural Practices – Ontario Statistics

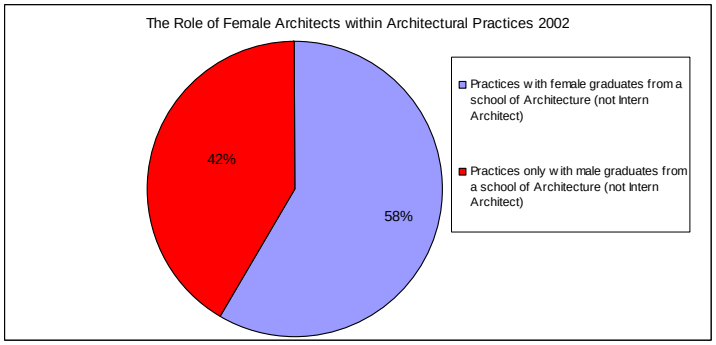
The OAA records indicate that the percentage of female licensed architects has slightly increased in 2002 to 13.52% from the 11.15% extracted from the 1996 OAA survey.

The percentage of practices which included women as principals, shareholders, officers or directors has increased from 16% to 21% from 1996 to 2002 and the percentage of practices with women, not as principals, shareholders, officers or directors, has increased from 29% to 41%, the surveys point to a large percentage of practices employing women who have graduated from architecture schools yet they are neither interns nor licensed members. – an increase to 58% from 29%.




There is also a sharp increase in the number of practices where female interns are employed. In 1996, the value was 34%, while in 2002 rose to 51%. This, combined with the fact that women enrollment in accredited schools of architecture is increasing (the percentage of recent graduates are approximately 50%) women signify a substantial and critical role that the women are playing in the industry and will continue to play in the future as a major supplier of architectural services.




The OAA surveys from 1996 and 2002 indicate women involvement in most areas of the architecture industry. The housing sector is where the highest percentage of women have been involved; 59% in 2002 with 35% in single family housing and 24.5% in multiple family housing, and 59% in 1996 with 27.7% in single family housing and 31.4% in multiple family housing. Moreover, the surveys indicated substantial participation by women in the health care and education sectors; in 2002, 40.6% of women architects indicated taking part in the healthcare sector and 38.6% took part in the education sector. The ratios for 1996 were 42.2% and 43.3% respectively. In addition, women have been

participating in the private sector. In 2002 participation in the office, retail and industrial fields was 18.8%, 25.3% and 23.4% respectively. The percentages for 1996 were 27% in office, 22.9% in retail and 24.1% in industrial.

In Ontario, women were historically known to take up careers in public services, historic preservation, housing design as well as the architectural resolution of social problems.[34] The surveys of 1996 and 2002 indicate however that women are focusing much less in areas such as historic preservation and social housing. Both surveys indicate minimal participation by women in restoration projects with 7.6% in 2002 and 10% in 1996. Moreover, while the 1996 survey indicated that 21% of women architects took part in social housing, the category was not mentioned in 2002 and there was a mention of a 2.7% involvement in multiple affordable housing.