

Reputation Resources Results



the WINDS of Change



www.rwdi.com

CONSULTING ENGINEERS
& SCIENTISTS



LUXOR HOTEL, NEVADA, USA



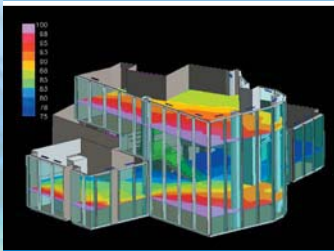
SKYDOME (NOW ROGERS CENTRE), ONTARIO, CANADA



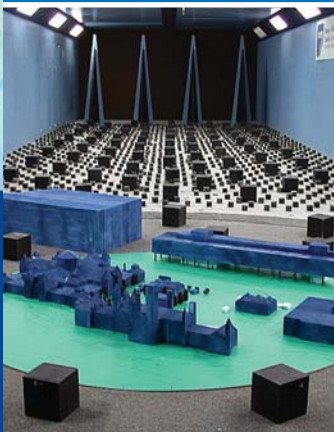
SLOAN-KETTERING CANCER CENTER, NEW YORK, USA



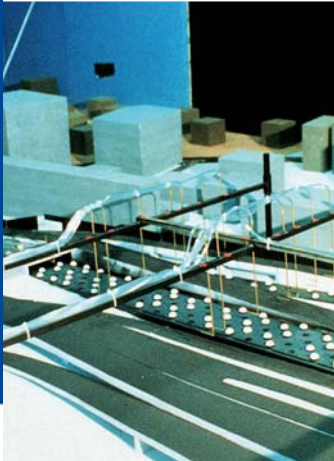
TRANSCANADA PIPELINE, BRITISH COLUMBIA, CANADA



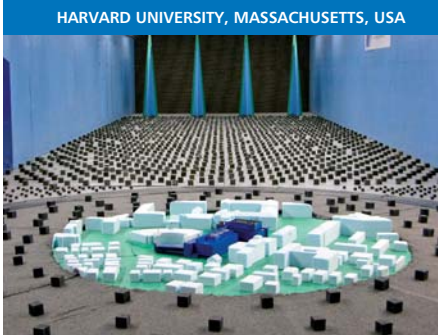
ASTOR PLACE CONDOMINIUM, NEW YORK, USA



SMITHSONIAN, WASHINGTON D.C., USA



BOSTON ARTERY, MASSACHUSETTS, USA



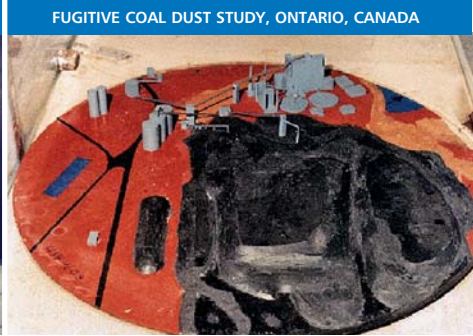
HARVARD UNIVERSITY, MASSACHUSETTS, USA



SITHE ENERGIES, ONTARIO, CANADA



COOPER RIVER BRIDGE, SOUTH CAROLINA, USA



FUGITIVE COAL DUST STUDY, ONTARIO, CANADA

Where we



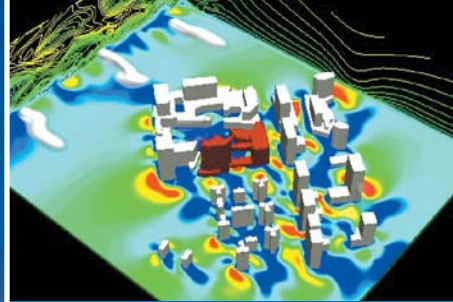
-  Project Locations
-  RWDI Offices



GRAND MOSQUE, MECCA, SAUDI ARABIA



PETRONAS TOWERS, KUALA LUMPUR, MALAYSIA



I.T. COMPLEX, SEOUL, KOREA

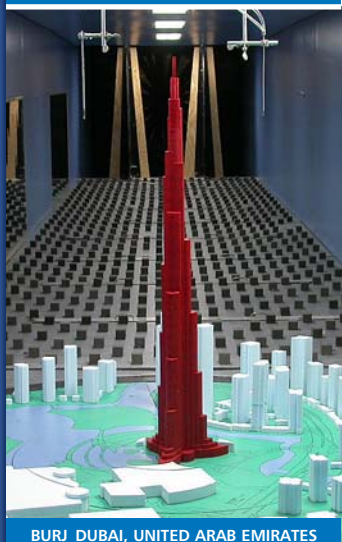


DUBLIN SPIRE, DUBLIN, IRELAND

've worked



TAIPEI INTERNATIONAL FINANCIAL CENTER, TAIPEI, TAIWAN



BURJ DUBAI, UNITED ARAB EMIRATES

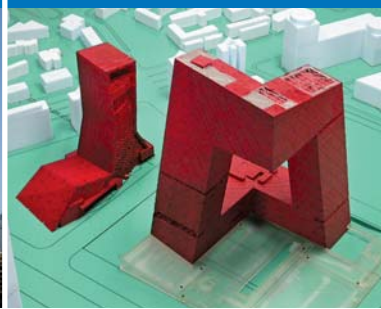
AMUNDSEN RESEARCH STATION, SOUTH POLE



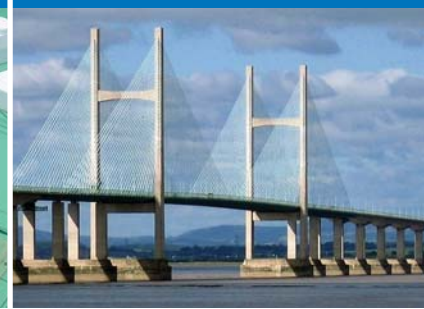
SAKHALIN-1 DRILLING RIG, SAKHALIN ISLANDS, RUSSIA



CHINA CENTRAL TELEVISION, BEIJING, CHINA



SECOND SEVERN CROSSING, BRISTOL, UK



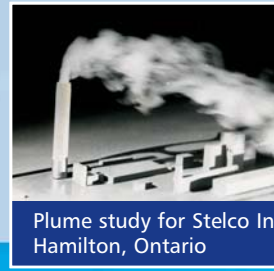
'70s



The open channel water flume – the “wind and snow simulator”



Snow fence in Baker Lake, Nunavut



Plume study for Stelco in Hamilton, Ontario

ANNOUNCEMENT
MORRISON, HERSHFIELD, THEAKSTON & ROWAN LIMITED

A. JAMES BURGESS F. H. THEAKSTON W. H. D. ROWAN

A. James Burgess, President, announces the formation of the consulting engineering firm of Morrison, Hershfield, Theakston & Rowan, Limited with office in Guelph, Ontario, and the appointment of F. H. Theakston as Vice-President and W. H. D. Rowan as Vice-President and Manager.

MHTR is launched to carry out snow control studies



Colin Williams accepting an award of excellence from Jeanne Sauvé, Governor General of Canada (left)



Bill Rowan (left) and Peter Irwin review model in second boundary layer wind tunnel

The entrepreneurial engineers

Morrison Hershfield Burgess & Huggins (MHBH) was a well-established, Toronto-based engineering firm when it hired an ambitious engineer by the name of Bill Rowan in 1964.

Bill would eventually pull together a unique team of talented engineers and scientists over the course of 35 years, to introduce a wide range of new services to the emerging field of wind tunnel testing and consulting for the building and industrial sectors.

Contributing to the successful design of some of the world's most prestigious and unique buildings, stadiums and institutional projects, the company would also become a premier environmental air quality, noise and risk service provider to major industries and governments. By 2007, the new company he helped found – RWDI – would build a trusted reputation delivering useful modeling and measurement results to its clients. Today, the company provides wind engineering, microclimate, ventilation, motion engineering and environmental air quality, noise and risk services to clients around the world.

RWDI's roots began in 1972 in a partnership with Frank Theakston, a University of Guelph engineering professor, who pioneered a water flume technique to study the impacts of snow and wind on farming operations in Canada. The partnership was called Morrison, Hershfield, Theakston & Rowan Limited (MHTR). It was set-up to use the wind and snow simulator (water flume) with scale models to solve microclimate issues for the built environment.

Although MHTR initially received a skeptical response to the water flume approach, the technology was eventually accepted for its useful results. MHTR worked closely with architects, engineers, municipal governments and the federal government, demonstrating the water flume's ability to simulate snow and to assist the building design process.

Eventually, a steady stream of high-profile work and studies materialized for the firm.

Where there is snow, there is also wind

The design of a unique, kilometer-long Northern Canada snow fence helped MHTR gain momentum. Back home in Guelph, Ontario, the young company added wind engineering experts Colin Williams, Anton Davies and Peter Irwin to the firm. The stronger team began to identify opportunities for generating more wind tunnel work among its current and prospective clients.

The company built its first of four boundary layer wind tunnels and began to market its wind study capabilities, soon to become its signature service. Before long, MHTR expanded and moved to a larger building in Guelph – adding project specialists and model builders.



c. in



odels in firm's



The founders of RWDI in 1986



Clients and RWDI team pose in the wind tunnel



RWDI conducts emissions dispersion modeling for in



RWDI model makers create a bridge model for testing



RWDI AIR remote monitor

'80s

Operating with limited resources, the firm developed a corporate character that appreciated innovative thinking, the value of a dollar, listening to clients, responsiveness, and, above all, its hard-working people. These traits are still the foundation of the company's culture.

As the late 70s and early 80s brought the economic challenges of higher interest rates and inflation, the volume of wind and snow studies began to slow in step with the building industry cycle, resulting in the company's first downturn. Its leaders resolved to diversify into new market sectors to offset these building industry cycles. The entire globe became the firm's marketplace.

Reaching new heights and becoming RWDI

With the brief recession over, the balance of the 1980s developed in a prosperous way – as evidenced by the design and building of a large number of new tall buildings in major urban centers. The company capitalized on this new design trend, adding technical expertise and strongly promoting its services to developers.

Builders, facility owners, architects and structural engineers began to understand the many benefits of the wind engineering services: design problems and material cost savings could be identified, risks minimized, and occupant comfort and safety issues could be addressed.

The company's reputation for excellence grew to the point that the firm was invited to help write building industry codes. By the mid-1980s, the nucleus of a seasoned, professional and confident leadership team had been assembled and was working very hard to achieve specific project and revenue targets. The seven key managers – and future founders of RWDI – were now in place: Jim Burgess, Anton Davies, Gord Dunn, Peter Irwin, Bill Rowan, Glenn Schuyler and Colin Williams.

Now a team of 70, separation from Morrison Hershfield occurred and, in 1986, the name 'Rowan Williams Davies & Irwin Consulting Engineers' was created – and immediately abbreviated to RWDI for marketing purposes.

Diversification and expansion

For RWDI, diversification into new market sectors remained a priority, resulting in wind tunnel studies on long-span bridges and new projects with industrial clients to address air quality issues. RWDI also pioneered an entirely new technique to determine snow load assessments on domed roofs. This innovative method, called the Finite Area Element technique, remains a mainstay in determining building snow loads.

Successfully completing several high-profile projects in Texas, New York and Europe allowed RWDI's broader entrance into the United States and overseas markets to proceed well during the 1980s.

'90s



inventories and industry



ing station



Field technician monitoring industrial stack emissions



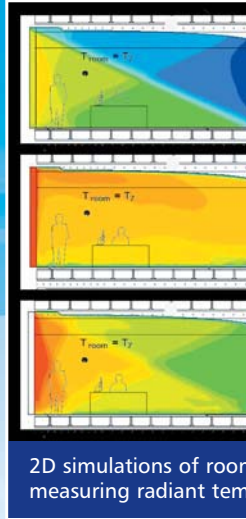
Clients and RWDI team pose with the Malaysia Dome model



RWDI's leadership team



RWDI has attracted a significant amount of publicity over the years



2D simulations of room measuring radiant tem

Bursts of development activity in Florida and Las Vegas generated dozens of new projects for the firm (e.g. hotels, resorts, condominiums, casinos). Before long, word of RWDI's expertise spread and a key success factor in its global reputation development came with winning a large contract to conduct complex wind studies on the Grand Mosque in Mecca, Saudi Arabia.

The firm's first UK assignment was to perform bridge studies for the Second Severn Crossing bridge connecting England to Wales. This project was won despite the efforts of stiff local competition. International success in dozens of countries served to curb the effects on RWDI of an early 1990s recession in North America.

Meanwhile, the onset of global environmental concerns led to modeling studies being conducted by RWDI for major industries and governments to better understand the impact of air emissions, noise and urban smog. By the early 1990s, the environmental movement exploded, presenting a wealth of new business opportunities and the creation of entirely new niche service areas.

At the same time, there was a boom in new sports and entertainment facility designs. This sector became a new specialized market for the firm to service. As a result of this and other diversification initiatives, RWDI managed to weather a brief economic slowdown effectively. The management team continued to analyze and improve the company's efficiency through the adoption of new technologies and the implementation of an improved project management system.

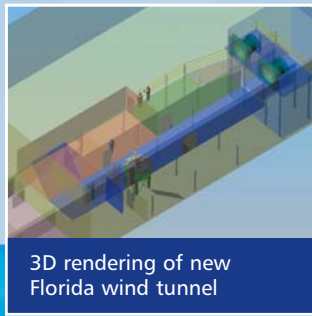
The new millennium creates new opportunities

The building industry surged ahead on a global scale at the start of the new millennium, as taller and more complex skyscrapers and structures were designed and planned – all requiring RWDI's wind load assessment, wind-induced vibration and motion control expertise.

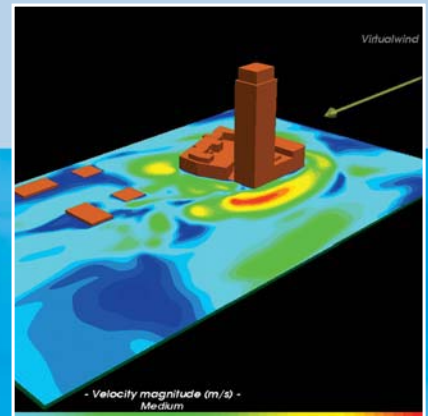
With a sharp increase in projects to manage, it became evident that decentralization was necessary to allow the various divisions of RWDI's 200+ sized staff to specialize and operate effectively, leading to the development of RWDI AIR, RWDI Wind and Microclimate, and Motioneering. With new offices established in the cities of Vancouver, Calgary and Ottawa in Canada, and Los Angeles in the USA, RWDI then set its sights on an overseas expansion.



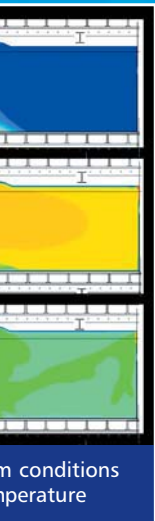
m in the new millennium



3D rendering of new Florida wind tunnel



Virtualwind computer simulation



m conditions
temperature



Rendering of 660-tonne Tuned Mass Damper in 101-storey Taipei 101 office tower



RWDI India office staff



RWDI Guelph office staff in 2007

2000s

In 2004, RWDI and Anemos Associates of the United Kingdom merged to create RWDI Anemos Limited, located in Dunstable, England (near London) to provide full services to European and Middle East countries. Other international offices have since opened in India, the United Arab Emirates, and, in 2007, Miramar, Florida, near Miami. The new Florida operation will service the needs of the USA, Caribbean, Mexican, Central American and South American markets.

The RWDI staff complement has grown to more than 350 people. The company's facilities and resources now include four boundary layer wind tunnels, an open channel water flume, and advanced computer modeling capabilities including Computational Fluid Dynamics (CFD). CFD was later used to simulate air flows inside buildings and tunnels. RWDI also has an in-house model shop that uses stereolithography technology, integrated data acquisition, storage and processing systems, computer-aided drafting and a broad base of specialized instrumentation.

L Looking ahead

Since its early days, the company has recognized the vital importance of meeting clients 'face to face' in order to help them better understand its services by listening closely to them and providing a high level of knowledgeable advice and responsive service. This approach remains a cornerstone of RWDI's approach to client services.

The trend of architects and engineers striving to design and construct increasingly tall and complex buildings will likely continue. More and more commercial structures will incorporate "green" and "sustainable design" components. State-of-the-art energy efficient technologies, high performance and natural ventilation systems, plus sophisticated 'reduced carbon emission' buildings are expected to arise in the decades ahead. Similarly, monitoring and measuring air emissions – like smog and noise – will continue to be of critical importance to industry, government and the public.

Such advanced needs will require sophisticated technical and professional assistance. The firm's ability to adapt effectively to changing market conditions, technological advancements, competition and corporate expansion challenges will remain important. RWDI will continue to invest substantial funds in the advancing of its technological needs.

In light of these trends, RWDI has confidence in its staff's ability to rise to any challenge and recruit the best talent available to serve the global market.

After all, since the company's inception, the quality of its people has characterized the organization, and this trait will continue to be RWDI's greatest asset.





Thank you **EMPLOYEES, CLIENTS**
and **SUPPLIERS** for your *contribution* and *dedication*.

We couldn't have done it without you!

In 2007, RWDI commemorates 35 years as a leading firm of consulting engineers and scientists that provides wind engineering, microclimate, ventilation, motion engineering and environmental air quality, noise and risk services to clients around the world.

RWDI's physical modeling, computer modeling and measurement techniques are combined with consulting experience to solve technical problems.

We make complicated issues simple...



CONSULTING ENGINEERS
& SCIENTISTS

Reputation Resources Results

Rowan Williams Davies & Irwin Inc.
Consulting Engineers & Scientists

Head Office:
650 Woodlawn Road West
Guelph, Ontario, Canada N1K 1B8
Tel: 519-823-1311
Fax: 519-823-1316
E-mail: info@rwdi.com

For a complete list of RWDI services and worldwide offices,
visit our web site: www.rwdi.com

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