

PINCHIN LIMITED – ACOUSTICS AND VIBRATION TEAM

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Résumé

Pinchin fait partie du groupe Pinchin, un réseau de quatre entreprises au niveau régional en propriété exclusive, avec plusieurs bureaux à travers le Canada de St. John, Terre-Neuve à Victoria, Colombie-Britannique. La société est dotée d'une équipe de sept cents ingénieurs professionnels qualifiés et expérimentés, scientifiques, hygiénistes industriels, géologues, technologues et gestionnaires de projets qui peuvent offrir des solutions innovatrices pour des problèmes complexes. Pinchin a une équipe grandissante qui spécialise dans le domaine de l'acoustique et des vibrations. L'équipe comprend les besoins accroissant de notre clientèle, et est capable de fournir des services d'ingénierie acoustiques innovantes et efficaces.

Mots-clés: Acoustique, lutte contre le bruit, vibrations, son, Ingénierie, Environnement, Construction, Santé, Sécurité

Abstract

Pinchin is part of the Pinchin Group, a network of four regionally-owned companies, with several offices across Canada from St. John's, Newfoundland to Victoria, British Columbia. The Company is staffed by a team of seven hundred skilled and experienced professional engineers, scientists, industrial hygienists, geologists, technologists and project managers that can offer innovative solutions to complex problems. Following suit with the company's reputation and success Pinchin has strategically grown its Acoustics and Vibration team to provide innovative and effective acoustic engineering services and solutions to their clients ever expanding needs.

Keywords: Acoustics, Noise Control, Vibration, Sound, Engineering, Environment, Building Science, Health, Safety

1 Introduction

Pinchin Ltd., part of the Pinchin Group of Companies, is one of Canada's largest environmental, engineering, health and safety consulting firms. The company employs over 700 staff in over 30 offices across the country. Established in 1981 by Dr. Don Pinchin to provide consulting services to the asbestos abatement industry, the company now provides an exhaustive list of services to its clients whom range from small residential to large industrial facilities. The Acoustics and Vibration Team, part of the Emissions and Reduction & Compliance (ERC) group, are continually expanding their knowledge base and expertise in order to better serve their clients ever changing needs in sound and vibration, and work with and support the other groups within Pinchin.

The consideration of noise issues, for years, has been strongly related to Pinchin's work in environmental permitting and approvals. This has been important in order to manage and regulate the impact from commercial and industrial facilities on acoustically sensitive areas, as noise is considered to be a contaminant as defined by the World Health Organization.

Since this initial consideration, a number of additional factors have evolved; thereby, elevating the importance of noise and other acoustic concerns. Some factors of influence are:

- Building design construction continuing to utilize more cost effective and lightweight materials. This is increasing the necessity for both acoustic design and for sound transmission class (STC) testing of building

partitions to ensure that appropriate acoustic separations have been implemented between critical spaces.

- Architectural design and innovation has also seen a movement toward more open spaces with acoustically hard surfaces which have the potential to compromise and diminish speech privacy in, for example, open plan offices. This requires consideration for space specific noise control, surface treatment and even sound masking systems in some cases.
- Research is also being done on how the acoustics of learning spaces has a direct impact on the ability of our children to learn effectively with comprehension in order to succeed in school. This requires special considerations for room acoustics treatment and noise control design.

In recognising the changing acoustic landscape, Pinchin's Acoustics and Vibration Team has been adapting and evolving in order to meet our clients' demands and capture the new opportunities being presented.

2 Expansion of Services

The Acoustics and Vibration Team has a very strong base in environmental noise and vibration assessment, given the company's roots in environmental, health and safety. The Acoustics and Vibration Team at Pinchin Ltd., is expanding its expertise to address growing clients' needs in testing and the requirement for solutions to challenging sound and vibration challenges.

2.1 Environmental Noise and Vibration

As the distance between industrial facilities and their neighbours' decreases, noise is becoming an increasingly common problem for plant managers to address. When land uses change around industrial areas, a proactive strategy in identifying potential noise concerns has the potential to limit costs and nuisance issues in the future. Our environmental services do not just cover the necessary compliance and approvals work. We also work with our clients alongside the other groups within Pinchin in order to resolve difficult issues and develop value added engineered noise control solutions that fit our client's needs and budget.



Figure 1: Roof top noise impacting nearby balcony in Toronto.

2.2 Building Acoustics

The established Building Sciences group at Pinchin offers a number of services with the overall goal to improve energy efficiency, building performance, reduced operating costs, minimize environmental impacts and enhance occupant comfort. It is in these areas where the Building Sciences Group leans on and collaborates with the Acoustics and Vibration Team to provide clients with value added services. This includes Acoustic Planning, Design Development and Commissioning, Environmental Noise in Land Use Planning, Acoustic Design in façade construction, indoor noise and vibration modelling of HVAC and power equipment, partition study reviews for speech privacy, ASTC testing, and room acoustics measurement and assessment. These services enhance the current offerings of the Building Sciences Group in Building Envelope Design, Building Sciences Investigation and Optimization, Condominium Management Support and Tarion Bulletin 19R certification.



Figure 2: Double stud wall construction for high STC partition.

2.3 Occupational Noise and Vibration

Within Pinchin there exists an already well established Occupation Health and Safety Group (OHS). This team of

Environmental, Occupational Health and Safety professionals is made up of Certified Industrial Hygienists (CIH), Registered Occupational Hygienists (ROH), Professional Engineers, Canadian Registered Safety Professionals (CRSP), and Lead Auditors (CEA, EMS, (LA)) to assist in meeting our clients' Health and Safety goals.



Figure 3: Human vibration assessment in the work environment.

With respect to acoustics and vibration, the OHS has been independently conducting audits of workplaces to ensure compliance with the Ministry of Labour initiatives. In many cases, there is a requirement for developing engineering solutions to address and meet the appropriate noise and vibration exposure limits. The growth of the Acoustics and Vibration Team in terms of skills and capabilities has allowed an expansion of client services offered by the OHS. This includes engineered noise and vibration management programs, hand-arm and whole body vibration assessment, construction noise and vibration monitoring and assessment, noise and vibration measurement to investigate intrusion into office spaces and its impacts on employee comfort.

2.4 Noise and Vibration Control Design

Noise and Vibration Control Design is a key aspect of projects handled by the Acoustics and Vibration Team. The complexity and implications of approvals and permitting for multi building, multi-site facilities have significant cost implications for implementation of noise control in major urban centres & residential communities. In this case, a well thought out and strategic Noise and Vibration Control Plan is required to address both interior and exterior requirements.

Pinchin's consulting engineering and technical support services in noise, acoustics and vibration include: Environmental Noise and Vibration, Architectural Acoustics and Building Noise Control, Acoustic Audits and Assessment Reports, Mechanical Noise and Vibration Control, Acoustic Performance Verification Studies, Occupational Noise and Vibration Assessments with Engineered Control Programs, Environmental Permitting, Municipal Approvals such as Site Plan Control and Rezoning, Construction Noise and Vibration Monitoring, Noise and Vibration Control Design Development and Project Management services, Complaint Investigations and Sound Level Monitoring, Expert Municipal Board Testimony in rezoning, land use planning, proposed development, Policy development and negotiating, Acoustic Testing for proposed infrastructure and design/build projects.