

INDEPENDENT ENVIRONMENTAL CONSULTANTS (IEC): NOISE & VIBRATION SERVICES

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Résumé

Independent Environmental Consultants (IEC) a été fondée en 2015 et opère à partir de Markham, en Ontario. L'entreprise a pour objectifs de fournir aux clients des conseils de haut niveau et des conseils stratégiques sur les nouvelles et sur les questions environnementales continue, au sein de l'échelle locale, régionale et cadre réglementaire national, et pour informer l'industrie, les gouvernements et les citoyens dans l'atténuation et la prévention de futurs accidents ou événements critiques. Paul Kirby est vice-président des Services environnementaux, et supervise l'équipe de bruit et vibrations au IEC. Paul a plus de 20 ans d'expérience dans la qualité de l'air, le bruit et les vibrations des évaluations et la délivrance de permis. Nicholas Shinbin est le responsable technique pour l'équipe de bruit et de vibrations à la CEI, et a plus de 13 ans d'expérience dans la préparation de la qualité de l'air, le bruit et les vibrations des évaluations.

Mots clefs : acoustique, bruit, vibration, évaluation, la mesure, prédiction

Abstract

Independent Environmental Consultants (IEC) was founded in 2015 and operates out of Markham, Ontario. The firm's objectives are to provide clients with high-level consulting and strategic advice on new and on-going environmental issues, within the local, regional and national regulatory framework, and to advise industry, governments and citizens in the mitigation and prevention of future accidents or critical events. Paul Kirby is the Vice President of Environmental Services, and oversees the Noise and Vibration team at IEC. Paul has over 20 years of experience in air quality, noise and vibration assessments and permitting. Nicholas Shinbin is the technical lead for the Noise and Vibration team at IEC, and has over 13 years of experience in completing air quality, noise and vibration assessments.

Keywords: acoustics, noise, vibration, assessment, measurement, prediction

1 Introduction

Founded in 2015, Independent Environmental Consultants (IEC) provides experience and expertise in environmental science and engineering projects to clients across Ontario, Canada and worldwide. All of the founding members and affiliates have 20 to 40 years of experience working in consulting or industry, and have held senior-level management roles.

IEC is an independent, employee-owned operation based in Markham, Ontario. IEC's objective is to leverage the collective experience of its senior staff and affiliates and offer environmental consulting services, strategic advice and peer review services to Governments (federal/ provincial/ municipal), Industry, NGOs/ Special Interest Groups, First Nations, Lawyers, Engineering/Environmental Consulting Companies, International Financial Institutions and Overseas Governments. The senior staff and affiliates are supported by a team of highly skilled junior, intermediate and senior level personnel.

The noise and vibration services group is headed by Paul Kirby, who has 20 years of experience in completing and managing environmental noise and vibration projects throughout Canada and internationally.

The technical lead for the noise and vibration services is Nicholas Shinbin, who has 13 years of experience in environmental consulting, including the completion of detailed noise and vibration assessments for a broad range of clientele, as well as completing research in the field of acoustics at Ryerson University under the supervision of Professor Ramani Ramakrishnan of the Department of Architectural Science.

2 Service Areas

The Noise and Vibration team at IEC is able to provide services in the following areas:

- compliance permitting (e.g., ECA applications)
- environmental assessment (EA) support, including:
- industrial/manufacturing facilities
- transportation facilities (road, rail, transit)
- energy facilities (wind, solar, nuclear, natural gas, hydroelectric, biomass)
- mining and oil & gas facilities
- noise and vibration modelling
- source measurements, investigations and inventories

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- noise and vibration monitoring (community, remote sites, underwater)
- noise mapping
- compliance and due diligence auditing
- development of noise control strategies
- occupational noise and vibration assessment
- land use compatibility studies
- feasibility studies
- peer reviews
- regulatory and agency negotiation
- public engagement and consultation

3 Team Profiles

Mr. Paul Kirby is a Certified Engineering Technologist (CET), a Canadian Certified Environmental Practitioner (EP), and a Certified Environmental Auditor (EP-CEA). Paul is the Vice President at IEC, with 20 years of experience in air quality, noise and vibration assessments and permitting. To date, he has been involved in over 300 environmental approvals, and environmental assessment projects for a wide array of industrial, commercial and institutional clients. Designing/ performing monitoring campaigns, developing predictive models, determining the significance of human health and wildlife impacts and evaluating cumulative effects are all areas of his expertise. Paul has also completed a number of noise mitigation design projects for a wide variety of industries in the energy, mining and transportation sectors. His technical expertise has also been lent to stakeholder consultations from small local community groups to wider public forums.

Paul is also well versed in project management and quality assurance and control methods and is principally responsible for initiating, planning, executing, monitoring and controlling noise and vibration projects at IEC. He has successfully managed a wide array of projects ranging from small acoustic assessments to larger multi-disciplinary environmental assessment projects.

Nicholas Shinbin is the technical noise and vibration lead at IEC, with over 13 years of experience based in the fields of acoustic, vibration and air quality assessment. Specializing in environmental noise and vibration impact assessment, he has worked with a wide range of clientele to provide services including compliance permitting, supporting Environmental Assessment projects through the provision of detailed noise and vibration studies, completing feasibility studies and land use compatibility assessments, and developing noise and vibration control strategies. His skills include source characterization (through direct measurement and numerical methods), long-term data acquisition programs and predictive modelling.

Mr. Shinbin has provided comprehensive noise and vibration assessment services for over 150 projects within Ontario, as well as throughout Canada and internationally. He has a thorough knowledge of the regulatory framework in Ontario and throughout Canada for the assessment of noise and vibration from industrial sources, construction and transportation projects, as well as occupational noise exposure in the workplace. He has successfully completed

projects in accordance with the strict requirements of the Ontario Ministry of the Environment and Climate Change, Ontario Ministry of Transportation, Health Canada, the International Finance Corporation (IFC) as well as for environmental regulators within Canada and abroad.

Mr. Shinbin has been trained and certified as an expert user of the internationally recognized acoustic modelling software Cadna-A. He has applied his knowledge in the development of complex acoustic modelling for existing facilities, proposed expansions and proposed future facilities for a broad range of project types. Examples of acoustic modelling assessments projects he has completed include: mining complexes (incl. air traffic for remote facilities), manufacturing facilities, roads and highway projects, railways, public transportation projects, energy facilities (e.g., nuclear power plants, natural gas power plants, solar farms, wind turbines) and large-scale construction/remediation projects.

In addition to Cadna-A, Mr. Shinbin also has extensive experience with modelling noise from transportation sources (road and rail) using the MOECC traffic noise model, STAMSON, as well as the U.S. FHWA Traffic Noise Model (TNM). He has also applied methodology provided by the U.S. Federal Rail Administration (FRA) in the prediction of noise and vibration impacts from rail traffic. He has completed modelling of indoor environments for prediction of potential occupational noise exposure issues.

In addition to consulting, Mr. Shinbin spent 20 months working as a Research Assistant to Professor Ramani Ramakrishnan at Ryerson University, completing a project for an industrial business partner in the field of noise control. This project involved developing an approach to modelling the insertion loss of lined ducts in 3D using COMSOL Multiphysics, and validating the results against laboratory data for existing designs and examples from literature. The validated approach was then applied to test the viability of innovative new silencer designs developed by their business partner, such that they could avoid the high costs associated with building prototypes and completing testing during the feasibility stage. Using this modelling approach, Dr. Ramakrishnan and Mr. Shinbin were also able to provide their business partner with normalized design curves for various models of elbow silencers, which allows them to approximate how the insertion loss would change if parameters such as the liner width and/or material were changed.

4 Conclusion

The highly qualified and experienced professionals that comprise the Noise and Vibration team at IEC are able to provide a wide range of assessment and consulting services for projects around the globe. Our staff are knowledgeable, dedicated, conscientious, and thorough, and committed to completing projects accurately and in a timely and unbiased manner.